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Railway Age

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Railway Age

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Can Valuation Be Settled?

THE passage of the LaFollette act for a valuation of railroads in 1913 was a direct result of years of representation to the public that the railways were grossly overcapitalized, that their property investment accounts were inflated, that they were earning excessive returns, and that a valuation would prove these things and thereby justify large reductions of rates. It was claimed by those who advocated a valuation that it could be made within a few years and at a cost of only a few millions of dollars.

After the passage of sixteen years, and the expenditure of about $150,000,000 by the Interstate Commerce Commission and the railways, the Supreme court has rendered in the O'Fallon case a decision which does not uphold the extreme views either of those who have contended that the present cost of reproduction of the properties should be made almost the sole basis of valuation, or of those who have contended that it should hardly be considered at all. The information regarding railway properties which the commission has gathered, and the principles of valuation enunciated by the Supreme court, make clear that no lawful valuation can be arrived at which will show that railway capitalization and property investment accounts as a whole are excessive, that the railways have earned excessive returns in the past or that most of them are earning a fair return now.

On the other hand, as already has been pointed out by the *Railway Age*, and by numerous railway executives who have given interviews to the press, the magnitude of the benefits which the O'Fallon decision is adapted to conferring on the railways may easily be exaggerated. First, the court has said that cost of reproduction must be considered in valuation, but it has not said how much weight must be given to it. Secondly, rates must be adjusted in accordance with competitive and other economic conditions, and it does not follow that if the roads got a valuation based largely upon cost of reproduction they would be able to get earnings that would yield a "fair return" upon it. Third, cost of reproduction has both declined and increased in the past. It is conceivable it may decline in future. The railways did not want a valuation made in accordance with the unconstitutional and confiscatory methods and principles favored by a majority of the Interstate Commerce Commission, but neither should they want a basis of valuation which might justify not only very large increases in their net returns now but large reductions in their net returns some years from now.

No one should want the decision of the Supreme court to result in postponement for many years of the settlement of the question of valuation, with all the controversy, litigation and expense this would involve, and yet it is easy to see that this might be the result. Those who want the lowest possible valuation might contend that the court's decision would be given sufficient effect if merely nominal consideration were accorded to cost of reproduction. Those who want a very large valuation might contend that the court's decision would be given the effect intended by it only if cost of reproduction were accorded dominant or almost sole consideration. If the Interstate Commerce Commission should adopt either of these views, and try to regulate rates accordingly, the question of valuation undoubtedly would soon get back into the courts again, and probably would stay there in one form or another as long as it could apparently be shown that the commission was taking an extreme position, as measured by the somewhat doubtful standards enunciated by the Supreme court.

All the developments that have occurred indicate that if the question of railroad valuation is ever settled the settlement will be some kind of a compromise between extreme views. This apparently will be the result, whether it is arrived at by prolonged litigation or in some other way. The outcome will not be a basis for rate regulation which will be agreeable to those who expected and hoped for a valuation which would justify the continuance of such restrictive regulation as has been applied to the railways in the past, nor will it be one that will be satisfactory to those who would like to see a valuation arrived at which would justify a huge increase in railway net operating income.

As it seems probable that, whether arrived at by litigation or otherwise, the basis of valuation finally adopted will be some kind of a compromise, may it not be worth while to consider whether it could not and should not be arrived at in a comparatively short time through conferences and agreements rather than by almost interminable and expensive hearings and litigation? Is it not conceivable that members of the Interstate Commerce Commission, representatives of the railways and representatives of the shipping and traveling public might hold more or less informal conferences, present their different views regarding the weight which, in view of the Supreme court's decision, should be given to present-day costs, depreciation and other factors, and virtually or actually agree upon a basis of valuation which, in actual practice, could be used in the regulation of rates, although it might never be known whether it did or did not conform to the views of the Supreme court?

The plain fact is that nobody now knows, and perhaps nobody ever will know, more than approximately,

how the Supreme court believes a valuation of all the railways for rate-making purposes should be made and used, and it seems highly improbable that rates fixed upon a basis arrived at in the way indicated could ever be successfully attacked in the courts upon the grounds that they yielded the railways either more or less than a fair return.

It may seem chimerical to suggest that the problem of railroad valuation might be disposed of without further resort to the courts. It seems even more chimerical to assume that a satisfactory basis of valuation, and satisfactory regulation of rates upon it as a basis, ever will be secured in the way in which it has been attempted to secure them during the last 16 years. The fixing of rates is more an economic than a legal problem. Only to a very limited extent can economic problems be solved by the methods of litigation. Those who first advocated the valuation, and subsequently advocated the methods and principles of valuation favored by the Interstate Commerce Commission, attacked the most fundamental property rights of the owners of the railways, and the defense of those rights made by the railways has been vindicated by the Supreme court in its decision in the O'Fallon case. It could hardly be said, however, that, as a practical matter, the managements of the railways had sacrificed any of the property rights of their security owners if they should accept some basis of valuation the acceptance of which seemed to be dictated by sound principles of railroad policy and economic policy, even though apparently it would not get for them all they might hope to secure at some remote future time by a continuance of the controversy and litigation over valuation that have now lasted for 16 years.

How Far Reduce Rates to Hold Passenger Traffic?

BRITISH railway statistics for January, 1929, recently published by the Ministry of Transport, indicate that low fares still succeed in attracting passengers back to the trains. As was true there last year, however, gross passenger revenues continue to decline despite this increased traffic. It was pointed out in the *Railway Age* of May 4, page 1028, that the British railways during 1928 carried 4,395,000 more passengers than in 1927, but that nevertheless their gross passenger revenues were two per cent under those of the previous year. The January, 1929, statistics reveal that, while passengers carried in that month increased 1.2 per cent over January, 1928, revenues declined 4.3 per cent and train miles rose five per cent. This increased train-mile production and its attendant outlay, together with the decrease in gross revenue, cannot but have had a markedly depressing influence on the passenger service operating ratio.

The problem, therefore, becomes one of decreased net earnings. In this connection it must be decided whether passengers inclined to choose the highway should be lured back to trains at a sacrifice of net revenue, or whether the railway companies should provide the highway transportation which an increasing number of their patrons seem to prefer, offsetting the added expenditure by a corresponding reduction in train service. American railroads of late have been adopting the latter course in increasing numbers. While efforts to hold passengers to the rails are praiseworthy, there is much to be said in favor of giving them the kind of transportation they really desire. When this is done, they are likely to be favorably disposed toward paying an equitable rate for the service—whereas, on the other hand, concessions must be multiplied continually when an attempt is made to attract those with a predilection for "riding on rubber" to a mode of travel which they are disinclined to accept.

Heavy Tonnage Trains

THE success attending the efforts of the Pittsburgh & Lake Erie to haul nine thousand tons per train in the summer and eight thousand tons in the winter should be interesting to any railway which is attempting to increase its output of gross ton-miles per train-hour. Heavier power and the use of boosters did much to increase the tonnage per train. Increased yard capacity and improved switching methods also contributed, by eliminating yard blockades and avoiding the necessity of holding trains out of yards awaiting track room. One of the important factors, however, has been the operation of these heavy trains with as few stops as possible. Signals have aided in this regard, but the operation of yard engines so as to keep them out of the way of main line trains, particularly heavy tonnage trains, has been one of the principal factors.

This has been accomplished by an unusual interpretation of Rule 93 of the Standard Code, covering the movement of yard engines on main tracks, which, on the P. & L. E., reads as follows: "Within yard limits, the main track may be used, protecting against *all* trains." The rigid enforcement of this rule has been extremely helpful in decreasing stops of heavy tonnage trains. In addition, it has had an important psychological effect, in that the engineers of the heavy trains now operate with the assurance that they have the right-of-way. This results in getting the heavy tonnage trains over the railway much faster than if it were necessary for their crews to be constantly on guard to avoid colliding with yard engines.

The Value of a Train Hour Saved

WHEN considering the authorization of expenditures for equipment or improvements to reduce operating costs or to facilitate train operation, one basis for estimating the economies to be effected is the number of train hours of delay eliminated. The Signal Section of the American Railway Association made a study of train-hour costs in 1924, as a result of which it set up a tentative figure of $24.98 as the average out-of-pocket cost for a train delay hour. In discussing this figure at the convention in March, 1926, it was shown that the cost varied from $5.40 to $25 on various roads, and that the average was from $15 to $18, depending on local conditions.

Realizing the importance of determining the value of the saving of a freight train delay hour for use in mak-

ing estimates for future developments the New York Central has made a study of actual costs. as ascertained by the division accountants, on each of the divisions of the railroad. Included in the data considered are such items as the class of power; wages, if they include overtime; fuel, water and oil; per diem on foreign cars; locomotive repairs; car repairs; interest, depreciation and taxes on system cars and locomotives. These studies showed that the cost of a train hour reclaimed varied on different divisions from $13.68 to $24.94 for trains of one engine and from $20.60 to $38.86 for trains doubleheaded. It is recognized that these figures do not include all of the incidental items or intangible benefits that result from reducing by one hour the time that a freight train consumes between terminals. However, it is a conservative basis on which to consider new projects. The New York Central has shown that these costs can be allocated and the matter is worthy of more study on other roads.

Revolution in Travel by Rail

THE statistics of passenger earnings for the first quarter of 1929 indicate that this year, for the first time in history, the railways are handling more passenger business in sleeping and parlor cars than in day coaches. The only measure of the proportion of total passenger business handled in sleeping and parlor cars which is constantly available from month to month is the revenue derived by the railways from the "surcharge". Total earnings from passenger business declined in the first quarter of the year, but the revenue from the "surcharge" increased. This shows that the business handled in sleeping and parlor cars, from which the surcharge is derived, increased, and that, in consequence, the entire decline of passenger revenues was due to a decline of travel in day coaches.

The "surcharge" affords a convenient basis for estimating the amounts of passenger business handled by the railways in day coaches and in sleeping and parlor cars, because it is known to average about 10 per cent of the passenger fares charged by the railways. Total passenger earnings in the first quarter of the year were about $215,250,000, and, estimating on the basis of the surcharge collected, it would appear that passengers traveling in sleeping and parlor cars paid about $109,000,000 of this in fares, while passengers traveling in day coaches paid about $106,000,000 of it. In other words, apparently about 50½ per cent of the travel was in sleeping and parlor cars, and only about 49½ per cent of it in day coaches.

These figures are highly significant as a reflection of the revolution in travel that has occurred within recent years. As recently as 1921 about 70 per cent of railway passenger traffic was handled in day coaches, and only about 30 per cent of it in sleeping and parlor cars. That was a year of depression in which the passenger business handled was 16½ per cent less than in 1920. Nevertheless, the business handled in day coaches has since continued to decline, and in 1928 was 40 per cent less than in 1921. On the other hand, travel in sleeping and parlor cars steadily increased until 1926. It declined in 1927, and again in 1928, but its decline was so much less than that of travel in day coaches that in 1928 it was more than 48 per cent of total passenger business.

The recent trend of earnings shows that travel in sleeping and parlor cars again has begun to increase. The surcharge yielded the railways more revenue in the first quarter of 1929 than in the first quarter of any previous year, excepting 1926, and an increase in surcharge revenue is, of course, a sure indication of an increase in travel in sleeping and parlor cars. In spite of all the clamor against the surcharge there is no evidence that it has tended to reduce travel in sleeping and parlor cars. On the contrary, the demand for the most expensive accommodations—that is, compartments and drawing rooms—is steadily increasing.

At the same time, in spite of all the efforts made to arrest it, the decline in travel in day coaches is continuing this year as it has throughout the last nine years. Undoubtedly many of the improvements in equipment and changes in service effected by the railways have made this decline slower than it otherwise would have been; but it is constantly becoming plainer that the day coach cannot compete with the private automobile, or even with the highway motor coach, for short distance local business.

Apparently the railways must engage more and more extensively in the operation of highway motor coaches, if they are to save a large part of their local passenger business or handle it at a smaller loss than that now incurred in the operation of local passenger trains.

Will O'Fallon Decision Affect Accounting Revision?

THERE are probably many situations implicit in the decision in the O'Fallon case which are not as yet fully recognized. One important problem before the railroads upon which the decision seems to bear directly and concerning which there has to our knowledge been little public comment is the matter of depreciation accounting and the revision of the accounting classifications. The record in these cases has been closed and the Interstate Commerce Commission is known to be preparing tentative decisions to be served on the railroads. Yet, the thought occurs, why should there now be much concern about accounting for depreciation when the United States Supreme Court has said that not enough weight has been given to the element of the cost of reproduction?

In the case of the proposed revision of the accounting classifications certain outside interests offered voluminous testimony favoring so-called "cost accounting" and the commission has undoubtedly been forced to consider this testimony in developing its findings in the case. But does not the O'Fallon decision minimize the importance of accounts purporting to show the cost of transporting specific commodities, even if accounting procedure which could accurately segregate such cost figures were available? The working out of a legal method of valuing railroad properties is an important task to which both the railroads and the Interstate Commerce Commission must address themselves. Accounting is expensive and should therefore be restricted to the development of essential facts. In the light of the O'Fallon decision, additional expenditures made to provide depreciation accounting or "cost accounting" could at this time, it would seem, scarcely be justified under the exaction of efficient and economical management.

Santa Fe Equips Car for Power-Plant Testing

Converted business car provides safe means of transporting testing devices and permits of synchronous metering

By E. E. Chapman

Engineer of Tests, Atchison, Topeka & Santa Fe, Chicago.

THE Atchison, Topeka & Santa Fe has placed in service a power-plant test car which, with its testing equipment, is designed to provide a uniform measure of operation for the 80 major power plants, exclusive of small pumping and heating stations, located on that railroad. On March 15 the car had been in service for one year. Data collected by means of this car enables the management to obtain an accurate knowledge of power-plant costs and the visits of the car serve a secondary useful purpose of disseminating information concerning desirable practices among the various power-plant operators.

Plant Characteristics

The nominal rating of the various plants on the Santa Fe ranges from 50 to 3,000 boiler hp. The geographical location of the plants in respect to the fuel supply results in the use of coal, oil, natural gas, and Diesel-engine fuel oil in different districts of the system. Of these plants 30 use coal as fuel, 40 use oil and 10 use natural gas. The larger plants furnish both alternating and direct current, compressed air, water and steam to serve the local facilities. Other plants have no electrical generating equipment while the smaller stations pump water and furnish steam only.

The 80 power plants burned the equivalent of 466,000 tons of coal costing $1,323,000 and incurred an operation charge of $2,039,000 during 1928. Facilities occupying so vital a place in railroad operation and representing the investment of millions of dollars in equipment, with an annual fuel bill of almost one and one-third million dollars, certainly deserve consideration in this day of rigid economies. It was in recognition of these things that the power-plant test car had its inception.

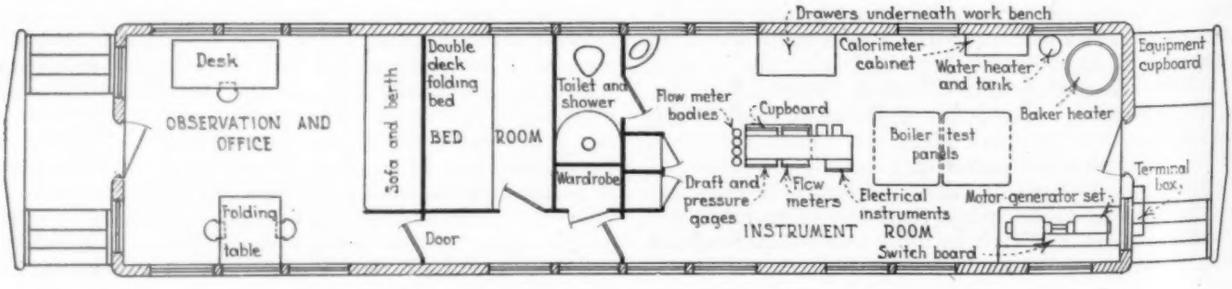
An old business car was utilized, which provided space for test equipment and also office and living quarters for the test crew. The primary consideration was the test equipment and in so far as permissible, each instrument was fixed in place and the portable instruments were definitely located so as to keep all in first-class condition and to entail the minimum loss of time in placing them in operation.

The policy of the Santa Fe with respect to power plants, as with other equipment, is to make tests to check the performance. A power-plant inspector visits the various plants to check up operation, to standardize methods and equipment and to correct wasteful practices. To place the output on an economic basis, power-plant tests are usually required. The cost per pound of steam, the distribution of the steam generated, the relative cost of fuels as affected by the different handling charges and accessories required, call for more careful investigation than can be obtained from the ordinary plant records or inspections. Central station power companies often make attractive offers to furnish electrical power to plants already generating their own power, and to consider these offers intelligently, a test of the local plant is usually required to determine how much it costs to generate electricity.

Scope of Test-Car Activities

The need for tests and the results obtained from them may be better understood by some examples. A test of a Corliss engine operating shop machinery resulted in the change of the valve setting, making it possible for the engine to carry the required load and reduced the steam consumption. A similar test of an air compressor showed that the manufacturer had made a mistake in a valve seat which, when corrected, reduced the steam consumption to the extent that two boilers only were needed instead of three to furnish the steam. Boiler tests resulting in furnace and firing changes have reduced the fuel consumption 8 to 10 per cent, resulting in $1,300 to $2,600 saving per year in fuel alone. The opening of a new natural gas field

* Abstract of paper presented before a meeting of the Western Railway Club at Chicago on April 15.



Floor Plan of Santa Fe Power-Plant Test Car

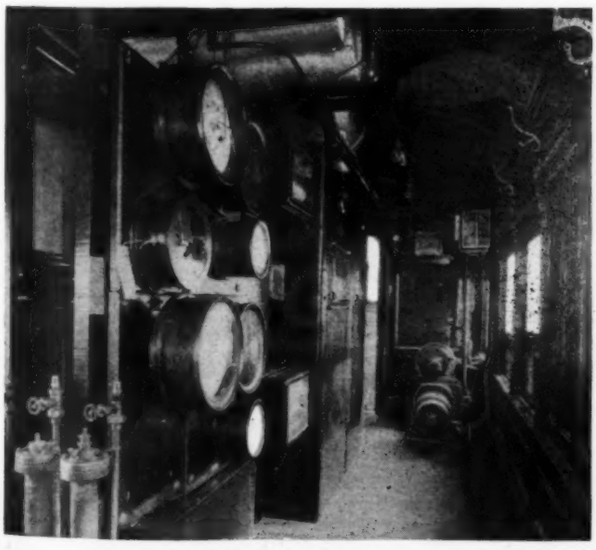
brought about an attractive offer for use of gas as fuel, guaranteeing an efficiency equal to that of oil. The first tests showed inefficient gas fires, which, when corrected, resulted in a satisfactory fuel saving. Where facilities are used jointly with other roads, tests have prorated the distribution of costs of steam and electrical power, as well as established the actual cost of steam, air and electricity.

These demands in the past resulted in random tests of plants. Box shipments of equipment were made, with the accompanying losses, breakage and delays enroute, and the time and expense of packing and unpacking. As the power needs increased, enlarged plants with more extensive equipment resulted, and the trend of industrial development pointed out the advantages of new types of instruments such as recording pyrometers, steam, air and water flowmeters, draft gages, carbon-dioxide meters, electrical instruments for recording the demand fluctuations and the inherent characteristics of plant generators and their electrical load. Equipment of this type, although portable, is not readily so, and the handling of sufficient instruments to secure complete power-plant tests by the old box shipment method, was entirely impracticable. As a result of this condition, the idea of equipping a power-plant test car was conceived.

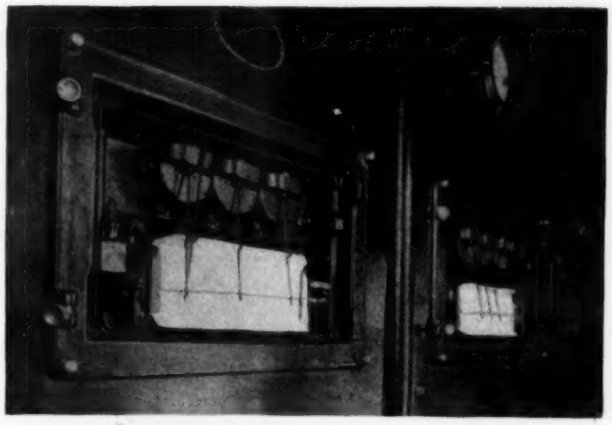
Arrangement of Car

The arrangement of the observation end of the business car was well suited for an office without changes other than the addition of a small desk and folding table. The sofa and berth provided satisfactory sleeping arrangements for two men. In addition to serving as an office where correspondence and references can be kept conveniently and where test results can be worked up as a test progresses, this room also serves as a lounging and reading room for the crew while traveling and otherwise off duty.

The stateroom, fitted with double-deck folding berths, furnishes sleeping space for two of the crew, and in case extra space is needed for setting up special apparatus or extra table room for working up indicator cards or other data, the berths are folded up, occupying about six inches of room space along one wall. Since the room opens into a hallway, it is shut off from the rest of the car, so that two men may sleep there while work may be carried on in the rest of the car without disturbing the men in the room.



Instrument Room of Test Car, Showing One Side of the Layout Which is Duplicated on Opposite Side of Car



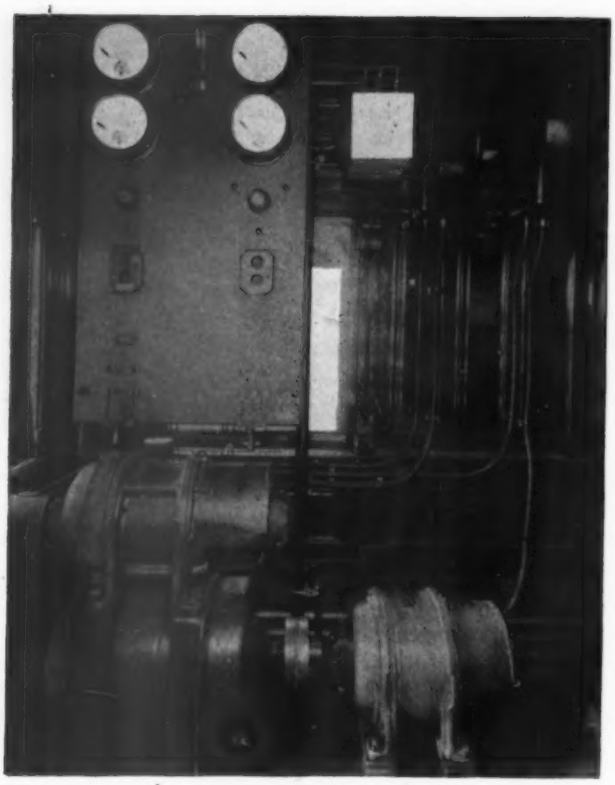
The Boiler-Test Panel Recording Elements

The instrument room occupies the largest portion of the car and in it are located the racks for the instruments, a motor-generator set, Baker heater, lockers for bed linen and work clothes, a work bench, and miscellaneous cabinets built to meet the requirements of the special apparatus. The locker on the front platform was refitted to take care of equipment not housed in the instrument room. Further space for miscellaneous equipment and fittings was provided by suspending equipment boxes beneath the car. The car-lighting generator and batteries were removed to eliminate the expense of maintaining storage batteries which would require frequent line charging on account of the little time spent on the road. Suitable connectors are located at each end of the car for plugging into the regular station or powerhouse lighting circuit, or into an adjacent car while enroute. Oil lamps or flash lights are used when electrical current is not available.

Metering Facilities

The initial selection of instruments and equipment was based on the requirements of the average power plant, assuming that the equipment already available at the larger plants could be used in conjunction with this. Four recording units are provided for boiler testing, each fitted to record simultaneously on a strip chart the steam flow, carbon dioxide and flue-gas and feed-water temperatures. The flowmeters are also supplied with integrators for obtaining cumulative readings. Four circular-chart recording draft gages and similar pressure gages are provided, for use in conjunction with the boiler test panels. Water meters, oil meters and miscellaneous indicating thermometers, complete the apparatus for boiler-room tests. Four circular-chart flowmeter units, which record and integrate the flow and record pressure, are installed for obtaining the distribution of steam, air or water. Recording kilowatt meters, voltmeters, ammeters, a power-factor meter and a frequency meter are included for electrical power records.

A gas calorimeter of the continuous-flow type and gas-density balance are required to take care of the power plants using natural gas as fuel. This apparatus is carried in a special cabinet and suitable connections are provided in the stateroom where more constant temperatures are to be had, so that the gas analysis may there be made satisfactorily by folding the



Motor-Generator Set and Switchboard Equipment for Supplying Test Instruments at Power Plants When 60-Cycle Current is Not Available

berths and setting up a folding table in that space. Samples of coal and fuel oil are forwarded to the main laboratory for analysis.

The flowmeter equipment requires 12-volt, 60-cycle alternating current for its operation, and in order to supply this at all times, a three-unit motor-generator set is installed, consisting of a 1½-kw. single-phase, 120-volt, 60-cycle generator, a 220-volt direct-current motor, and a 2-cycle alternating-current motor.

The boiler test panels are electrically actuated and are intended to be left in the car at all times. The distribution flowmeter units may or may not be kept going on the car, as desired. Ordinarily these recorders are kept on the car in order to minimize the work of meter installation, but a distant location occasionally makes it more desirable to move the recorder out of the car. The electrical connections for the boiler test panels and distribution flowmeter units are carried from the instruments to an outside terminal board, readily accessible from the head platform of the car. This terminal board also has the connections to the motor-generator set and extra terminals for additional equipment that may be added in the future.

Since the draft and pressure recorders require pipe connections it is usually impracticable to keep these instruments on the car. The electrical recording instruments similarly do not lend themselves easily to locations some distance from the switchboard or power circuits, on account of the amount of heavy copper wire that would be required.

Testing Procedure

During a one-year period ending on March 15 the car was utilized to test 11 plants. A typical test, at Argentine, Kan., required 19 days, from the time the car was spotted on a siding adjacent to the plant until the test equipment had been packed on the car ready for movement to the next point. Retests of the plants already tested can be made in much less time since, in each case, the test instrument connections at the plants have been permanently installed.

Two men ordinarily accompany the test car, although in some cases it has been expedient to send one man ahead with the car to begin the installation of equipment, the second man following a day or two before the test runs are started, and staying until the work is finished and equipment removed. The work of installing the apparatus is done with the help of the local shop forces. To assist with the actual test work, local shop apprentices are usually available and these boys are greatly helpful in the setting up of instruments and taking of test data. This work also helps to broaden the experience of the apprentices and to acquaint them with the equipment and operation of the local power plant.

Main Elements of Plant Considered

The regular power-plant tests, as now conducted, take into consideration the main elements of the plant. Unless specifically desired, the steam requirements of each auxiliary pump and steam line are not separately determined. Ordinarily the steam consumption and operation of the main power-house machinery is desired and the steam flow to roundhouse, machine shop, car shop, to heat fuel oil, for pumping, and to the sand house is metered separately. The air flow is usually obtained for the major air lines; namely, roundhouse, locomotive shops, car shops and freight-car yards.

From this description it will be seen that the power-plant test car fills a need on the Santa Fe System, in that it provides a safe and expedient method of transportation and storage of all the test equipment, and furnishes a headquarters' office, living room and convenient lodging place for the test crew. The use of recording instruments, which could not be considered for shipment by the old box method, is made possible. The charts obtained provide a complete record for future references to plant operation covering the whole period considered, including all of the fluctuations. This could not possibly be done by using the more portable indicating instruments. The amount of equipment provided permits all of the major items of steam and air consumption to be measured at one time, instead of metering one facility and then another with the assumption that every day is alike.

* * *

C. M. St. P. & P. Passenger Train at Milwaukee, Wis.

Company Forces Complete Tunnel On N. C. & St. L.

Unusual variation in the character of material encountered results in complications

By C. H. Johnson
Senior Assistant Engineer,
Nashville, Chattanooga & St. Louis,
Nashville, Tenn.

The Breast of the Center Heading in Good Chert

SOLID rock, clay, loose gravel, soft mud and large boulders were among the materials encountered in driving a tunnel 1,513 ft. long on the Western & Atlantic in northern Georgia, and gave rise to a variety of expedients in construction, even to the point of forcing cement grout into unstable ground for the purpose of producing a weak concrete through which the tunnel could be driven with some degree of facility. The Western & Atlantic is owned by the State of Georgia, but is operated under lease as the Atlanta division of the Nashville, Chattanooga & St. Louis. The tunnel was built to replace an old one completed in 1847 which was of inadequate dimensions for present-day equipment, as it was more advantageous to drive a new tunnel than to attempt to enlarge the old one under traffic. The two tunnels pierce Chattanooga mountain (the watershed between the Mississippi valley and the Coosa-Alabama system of rivers) through a ridge rising about 175 ft. above the track.

The new tunnel is 1,513 ft. long, 14 ft. wide at the bottom with side walls 16 ft. 6 in. high sloping outward to a width of 16 ft. at the top and carrying a 16-ft. semi-circular arch. The top of rail is 2 ft. 6 in. above the bottom of the tunnel and the clear overhead height is 22 ft. above the rail. The tunnel is lined throughout with concrete, the arch being 2 ft. thick, the walls averaging 3 ft. and the floor 18 in. Twelve thousand cubic yards of concrete were used in the lining and portals, and required approximately 300 cars of stone, 150 cars of sand and 90 cars of cement. About 900,000 ft. b.m. of timber was used in the tunnel, all of which had to be timbered except a length of 75 ft.

Built By Company Forces

This new tunnel was built by company forces of the Nashville, Chattanooga & St. Louis at a cost of approximately $500,000; and, like all other improvements made upon the Western & Atlantic by the lessee it becomes the property of the State of Georgia. It is the latest of several major projects to increase the capacity, efficiency and safety of the railroad. Under the terms of the lease from the State of Georgia to the N. C. & St. L., the railroad, in addition to paying $540,000 a year as rent, is obligated to spend $3,000,000 on permanent additions and betterments during the fifty-year life of the lease. Nearly $2,000,000 has been spent during the first nine years of the lease.

Complete plans and specifications were prepared to govern the construction of the tunnel and approaches by contract, and a number of competent tunnel contractors were invited to submit bids. However, after 10 bids were received with lump sum prices ranging from $434,000 to $644,000, as compared with an estimated cost of $433,500, the management authorized its construction sub-department forces to undertake the work.

The tunnel was located on a new line diverging from the old line with a slight curve at the Tunnel Hill depot and projected on a tangent through the new tunnel 100 ft. east of the original tunnel, to connect again with the old line about one mile south of the tunnel. The embankments required for the new line were made from the material excavated from the approach cuts and from the tunnel proper. The surplus excavation was disposed of in waste banks along the new line. By a slight modification in grade, which places the south end of the new tunnel at an elevation five feet lower than the old one, a uniform grade was secured through the tunnel, thus avoiding the smoke pocket which was formed in the old tunnel by a break in the grade near the center.

Railroad Had Much Equipment Available

The work was formally authorized on April 1, 1927, and on April 11 the actual work of setting up the plant was started. Two camps were established, one at each end of the tunnel, and a spur-track was built for supplies and equipment at each end. A 50,000-gal. tank

Looking Up the Stepped-Off Bench, Showing Skips being Loaded at the Various Levels and Transferred Via the Trolley to the Muck Car Seen in the Foreground

was erected at a height sufficient to supply water for all purposes to all parts of the work, the water being pumped from a nearby spring. The tank and pumping plant were located on the north end of the work and a supply pipe was laid through the old tunnel to the south end. Special care was taken to keep the supply uncontaminated and to have an abundance of water for all purposes, domestic, steam and concrete. Before any work was done, the entire plant, including camps, tracks, concrete plant, blacksmith shop and timber yard, was laid out on a large-scale contour map and this layout was carefully followed in building the plant.

The railroad had only one steam shovel outfit available and work was started on the south approach cut first, to give access to the south portal and enable work to be started on the tunnel proper from that end well in advance of the north end. This was necessary to avoid as much trouble as possible from water that might be encountered, for, by working up grade, water could be drained out without resorting to pumps. Excavation of the south approach cut was begun on May 2 and on July 22 the south portal was exposed to wall-plate grade, thus permitting work to begin on the tunnel.

The three months occupied in opening up the approach cut allowed ample time to decide on the equipment, using the tools and machinery at hand and purchasing others. The purchases were small considering the size of the job. The available railroad equipment included two hoisting engines, two concrete mixers and an adequate supply of engines, cars, locomotive cranes and power pumps, but it was necessary to buy two ventilating fans with canvas tubing, two compressors, pneumatic tools, concrete cars, small dump cars, electric hoists, and motor cars for handling concrete, pipe, etc. Two 12-ft. sections of patent collapsible concrete arch forms were leased. Electricity for power and light was secured by an extension from the Georgia Power Company's line at Tunnel Hill. A large supply of timber for timbering the tunnel also was arranged for.

The top-heading method was adopted. The timbering consisted of 12-in. by 12-in. timbers cut to form five-chord, semi-circular segmental arches of sufficient size to permit the concrete arch to be built under them. The segmental timbers rested on 12-in. by 12-in. wall-plates on each side of the tunnel, and 4-in. by 8-in. lagging was placed on the segments, which were spaced four feet center to center except where heavy pressures demanded closer spacing. As the wall plates were 18 ft. long, it was necessary to drive a small drift about three feet by four feet ahead of the heading to enable the plates to be set. These drifts had to be timbered in most cases with temporary square sets. Having set the wall plates, the breast between the small drifts was excavated for four feet, without timbering if possible. Then another segment was set up, lagged over and back filled, the back-filling being thoroughly tamped in place. Where the material was soft, sloughing occurred, and this was sometimes overcome by driving pieces of lagging ahead before the next segment was set.

Actual work on the tunnel itself was begun on the south end on July 22. The face of the cut was in chert formation and in order to get started properly timber segments were set up on a wall plate with the end segment against the face of the cut, and lagging was spiked securely to each segment. The segments were four feet apart and eight of them were set in this manner, forming 30 ft. of tunnel barrel, which was then buried by dressing down the slope above and allowing the loosened material to roll down on it. On July 26, the first loose dirt was taken out of the heading, while the outside sloping was still in progress and on the following day the actual driving of the heading was begun.

The material proved especially favorable for heading work, being self-sustaining to such an extent that excavation could be carried four or five feet ahead of the timber with safety. This condition continued for about 150 ft. or for about six weeks, and the tunneling force began to feel that the difficulties had been greatly overrated. In a short time, however, limestone boulders of varying sizes were encountered embedded in the

A View of the Completed Tunnel at the Lower Level, Showing Narrow Gage Muck Track and Supports for the Upper Track Used in Concreting

chert, and as the heading advanced into this formation, the chert was gradually replaced by gravel, which sloughed in from overhead until voids were formed that extended as much as 30 ft. above the crown arch. Obviously, these pockets had to be filled with timber, tightly wedged into place before the work could go on. After somewhat farther advance, it was found that this gravel was lying on the upturned face of a rock ledge and when this was encountered, the work was somewhat less difficult. However, after advancing into this rock for 40 ft., it was replaced abruptly by clay, which after a short distance, was found to contain embedded boulders. Later the clay was replaced by a mass of loose boulders with no binding material of any kind.

Convert Mud into Concrete

These abrupt changes in the character of the material occurred as the work proceeded. At one point, a gravelly mud was encountered at one side of the heading and the progress of the work was stopped for three weeks. This difficulty was finally overcome by forcing cement grout under compressed air through a perforated pipe into the mass of gravel and mud, thus converting it into a very poor grade of concrete, but which was sufficiently stable to permit the excavation to be carried through it.

On November 1, the approach cut was completed to the permanent grade line, thus permitting a start to be made on the bench excavation in the tunnel, and the construction of the concrete plant.

The equipment provided for handling the muck from the top heading consisted of an electrically-driven belt conveyor that discharged into self-righting dump cars which were hauled to the mouth of the tunnel and thence up an incline where they were dumped into five-yard dump cars that were hauled to the waste bank by a dinkey locomotive. This plant proved entirely successful as long as the excavation was in the chert formation, but when boulders and solid rock were encountered, it proved inadequate.

Owing to the fact that the use of an air or electrically-operated shovel to remove the muck from the bench excavation, did not appear to be practicable under the circumstances, it was necessary to devise a rig of a more suitable nature. This took the form of an overhead trolley track, consisting of a line of 12-in. I-beams supported from the timbering. This track was 130 ft. long and carried an electric hoist mounted on ball-bearing wheels. With the aid of this rig, dump skips, holding about 1½ cu. yd. each, which were loaded by hand, were hoisted and moved along the trolley to a point where they could be dumped into 5-yd. dump cars, spotted under the trolley track on the completed concrete floor of the tunnel. By this means, it was possible to break up the 20-ft. face of the bench into four 5-ft. faces and dispose of the material from each one of these without interfering with the work of any of the others. A dump skip was provided for each lift and as they were filled, the hoist crew of two men would pick up the skip, roll it out to the dump cars and, after dumping, return it to its place. A walkway, suspended from the timbering at an elevation clear of the operations on the bench, was provided for the use of the hoist crew in moving the skips back and forth.

A View of the Completed Concrete Arch From the Upper Working Level. The Movable Arch Form is Seen in the Background

This arrangement, which was largely responsible for the success attained in completing the work within the estimate, permitted the work to be carried on continuously without having to wait for dump cars, and the working of a larger force under one foreman than would otherwise have been possible. Large rock and boulders were handled without breaking them up. Three or four dump cars could be spotted and loaded at one switching, whereas, any other method requires the separate handling of each individual car.

As the bench was taken out, the wall plate had to be supported on posts extending to the bottom of the excavation, and with the stepped-off bench, it was necessary to use three lengths of temporary posts which were taken down and used over again as the steps were worked out. As the posts were set, lagging had to be placed behind them and since the side pressure was considerable in some places, it was important that the con-

A View of the Construction Plant at the South Portal of the Tunnel

crete floor be placed promptly and kept close up to the face of the bench. In some places, the bottom was soft and would not carry the load transmitted through the posts from the wall plate and many extra temporary posts had to be put in on wide spread blocking.

Overcoming Arch Settlement

At one place, where the wall plate on one side was on solid rock, the posts in the other side settled 18 in., throwing the timber arch segments outside of line and lowering them to such an extent that the concrete arch could not be built under them. Here it was necessary to restore the timber to its original outline. This was done by taking out the lagging, a piece at the time, digging out the material above it and replacing the lagging on blocks cut to fit on the deformed segment. Thirty feet of tunnel was handled in this way and it looked anything but safe when the work of raising the lagging was finished. With this done, new segments were placed between the old deformed ones and the old ones were taken out. Prior to raising the lagging, the concrete wall had been run up to the underside of the low wall plate and the load had been transferred to the concrete. This trouble caused a loss of three weeks' time.

As soon as the bench excavation had been carried under the portal, work on a concrete lining was begun and was kept close to the completed excavation at all times. The side walls were poured in three lifts of about five feet each and each pouring consisted usually of a 12-ft. section of floor, a 12-ft. section of each of the three lifts and a section of arch, each of the sections being stepped back one lift so that the arch section was 48 ft. behind the floor section. The placing of the arch concrete was done by hand and was necessarily slow, so this part of each pouring had to be started first in order to finish it with the rest of the pour. It took as long to place the arch as it did to place the entire balance of the section. A collapsible steel arch form was used, supported on the finished concrete floor with suitable steel bents on wheels to facilitate its movement. The side wall forms were built of timber in movable sections, which were taken down and moved ahead from day to day. By this means, the cost of form work was reduced to a minimum and there were no delays.

The concrete plant consisted of a half-yard mixer, equipped with a charging hopper into which sand and stone were dumped direct from a measuring hopper, which was fed by gravity from the sand and stone bins. The cement house was immediately adjacent to the measuring hopper and only two men were required to handle all the sand, stone and cement. Sand and stone were unloaded from cars directly into the bins by a clamshell bucket and cement was unloaded from the same track into the cement house through a chute. All cement was delivered in paper sacks which were burned when emptied. The mixer discharged into a side-dump concrete car of 40 cu. ft. capacity which operated on an incline, extending to a point about 10 ft. above the spring line at the tunnel portal 200 ft. away from the mixer. Here the concrete was dumped into another similar car operating on a trestle which extended into the tunnel at spring-line grade. These cars were handled by a standard section motor car equipped to operate on the 36-in gage track. This rigging permitted the pouring of the floor and all of the side walls through chutes. Concrete for the arch was dumped on a platform in the arch form and shoveled into the arch from this platform. Movable plates composing the arch form permitted concrete to be shoveled in all of the arch except the key section with ease, but the key had to be shoveled in from the end and was not so easy to place.

While a complete concrete plant was provided at each end of the tunnel, only one concrete gang and one form gang were employed. While concreting was in progress on one end, the form gang would get the forms ready on the other end, by working alternate days on each end, each gang was kept busy at all times on the same class of work.

The entire job was carried out with company forces without the employment of any additional men except as laborers. As additional foremen were needed, when the force was expanded to double shifts, they were promoted from mechanics. Great care was taken at all times to keep the work absolutely safe and there were no serious accidents, and except in cases of personal negligence, there was no serious injury to an employee.

The headings from the east and west ends of the tunnel met with no variation in grade and alinement that could be measured and a perfect fit of the steel arch forms was effected when the concreting operations from the two ends of the tunnel came together at the meeting point. Final cost figures are not yet available but the indications are that the cost will be within the estimate, in spite of the fact that additional work was performed for which a contractor would have received extra compensation to the amount of $20,000 under the terms of the advertisement upon which bids were requested. The tunnel, including the concrete lining and portals, cost $250 per lin. ft.

* * *

In the Pennsylvania Yards at Pittsburgh, Pa.

Erie Systematizes Supply Work for Car Programs

Programming and scheduling avoid confusion, keep stocks down and cut shortages

THE Erie has developed a procedure for the ordering and handling of car repair materials, by means of which the stores department has succeeded in eliminating much confusion attendant upon supplying car rebuilding programs, and also in avoiding much over-ordering of material without endangering the progress of the work. The present policy is to repair cars in lots of 300 to 500, and when the cars are available supplementary arrangements are made to repair all of the cars of a series in the same shop, as far as this is possible. Under this practice, which is advantageous to both the mechanical and stores departments, the work orders are numbered consecutively and the shops designated by appropriate symbols to avoid any confusion as to the number of cars to be repaired and the site of the work.

When an order to repair cars is issued, the division car foreman or his assistants inspect a representative number of cars in the series to be repaired, for the purpose of determining their general condition. Where necessary, one or more cars are completely torn down to ascertain the material required for the repair work. Blueprints showing all items of car construction are used in the inspection, and lists are then prepared of the material needed for the work.

Upon the completion of this statement by the mechanical department, a copy is furnished to the proper storekeeper with advice as to the date upon which the material should be available for starting work on the car order. It also devolves upon the storekeeper to procure a written statement from the shop superintendent or master mechanic, giving as closely as possible the anticipated output of cars per day, as well as the date of commencement.

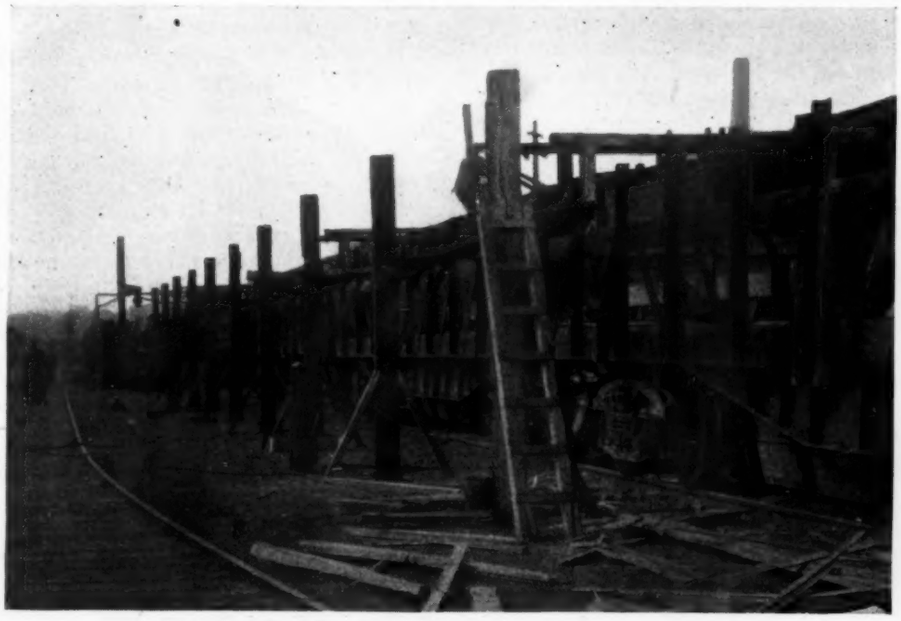
The description of the material called for is then entered on a special form designed to record each step in the progress of the work. In the right hand upper corner of this form are marked the number of the car order, the number of cars in the order and the series, while the rest of each sheet is ruled into columns for the following information with reference to each item of material:

Column 1, items marked "X" indicate 100 per cent renewal;
Column 2, description of material;
Column 3, total quantity required for entire program;
Column 4, quantity on hand;
Column 5, quantity available for car work in question, after deducting material for incompleted work and that for running repairs;
Column 6, requisition reference number and quantity ordered;
Column 7, number of purchase or stores department order;
Column 8, firm or store holding order;
Column 9, date shipped;
Column 10, surplus after completion of work.

Entries on Form

From the bill of material furnished by the car department, the total quantity of each item required for the entire car order is marked in Column 3. The storekeeper then ascertains by physical count how much material of each kind is already on hand, and enters this information in Column 4. In the next column is recorded the quantity available for the car work in question, after deducting from the quantity on hand, the quantity required for current running repairs, as determined from an examination of the stock books. The difference between the quantity of material required for the car work and the quantity available gives the quantity which must be acquired, and requisitions are prepared, the reference number and quantity called for in these requisitions being marked in Column 6.

When a series of cars are being inspected to arrive at an estimate of the material needed for their repair, the bill of material is usually made sufficiently complete to protect all contingencies. In practice, however, it usually develops that original bills of material do not forecast the requirements exactly and that the procurement of all of the material called for in these initial bills or



A Car Repair Operation

lists will result in excesses. To avoid this, the Erie practice calls for ordering the full estimated requirement at once only where 100 per cent renewal of the items is specified. Lumber, fabricated steel parts, and castings are examples of the commodities so ordered. If 100 per cent renewal is not specified, only 60 per cent of the requirements are ordered on initial requisitions, leaving the remaining requirements to be reviewed during the progress of the work.

Accumulation of Material Avoided

The dates the materials are to be delivered are specified on the requisition and the shipments are divided into installments 15 to 60 days apart to meet the requirements and to avoid accumulating more material than will be used promptly. In the case of materials of a special nature, or not regularly used in making running repairs, the plan is to call for sufficient material on the first requisition for 60 days' output, then to prepare the next requisition 30 days in advance of starting the work and have it call for a 30-day supply, unless all of the material was ordered on the first requisition. With standard items of material, such as couplers, brake beams, brake shoes, connecting rods, brake pins, nuts, washers, nails, grip nuts, rivets, paint, oils, brasses, wedges, etc., which are regularly used in repairs to standard equipment, the requisitions are prepared for a 30-day supply on the basis of actual consumption, as determined from the actual progress of the work.

Reference to each order is entered on the material report, and in addition a copy of each order that is placed with a manufacturer or with another store is furnished the proper storekeeper, who also receives a notice of every shipment. These records are marked in Columns 7, 8 and 9 on the special sheet, where they furnish at a glance the current status of supplies for the car work. To avoid any confusion, it is required that the special form cover all material described in the original bill of material, whether orders are issued for it or not. Also, the statement is divided to separate each period of ordering. The storekeeper traces the manufacturer or shipper directly in order to secure deliveries on the dates specified and otherwise to meet requirements, and as a precaution against the use of program material for other needs, the materials ordered for program car work are indicated in the stock book with the mark "P" and the order number.

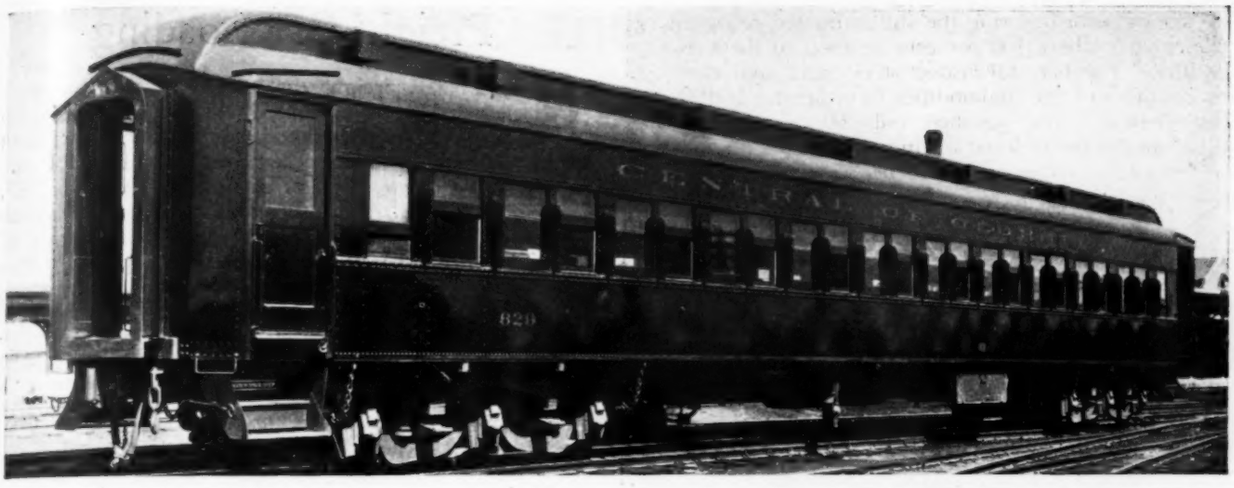
Check Surplus Early

The supply forces watch closely to see how the progress of the work checks with the original estimates, in order to be prepared at all times to meet any changes and to avoid premature accumulations of material, as well as to avoid shortages, and as far ahead of the completion of the program as practicable, frequent checks are made to determine approximately what materials are certain to be left over. These materials, if not needed locally, are then reported in the stock books as surplus, without waiting for the completion of the car program. The purpose of this check, obviously, is to absorb such surpluses as quickly as possible. Finally, when the program is completed, the stock is checked and all materials that are left over are recorded on the special form as surplus, and a statement of it filed with the manager of stores for immediate attention.

The plan has not eliminated the importance of a close watch upon the situation by the supply forces, or the maintenance of a close, personal contact between the supply and repair forces, but it has simplified the problem and has been the source of much improvement in results for both the mechanical and the supply department forces.

* * * *

The Santa Fe's "California Limited" Entering Grand Canyon, Ariz.



Chair Cars Used by the Central of Georgia Between Macon, Ga., and Atlanta

Central of Georgia Remodels Passenger Cars

Interiors of three coaches redecorated and provided with movable wicker chairs

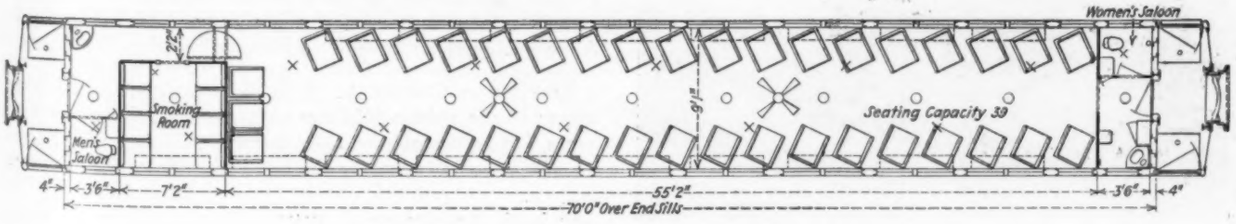
IN the effort to meet competition from other forms of transportation, such as the private automobile and bus lines, the Central of Georgia recently placed in service on trains 9 and 12, running between Macon, Ga., and Atlanta, three day coaches in which a number of unusual features in arrangement and interior decoration have been incorporated. Train No. 9 leaves Macon at 10:30 a.m. and makes three scheduled stops before arriving at Atlanta at 1:30 p.m. Train No. 12 is a local train, scheduled to leave Atlanta at 4:05 p.m. and to arrive at Macon at 7:00 p.m. No extra charge is made for the privilege of riding in the cars, and no porter service is provided.

These cars were built by the Pullman Car & Manufacturing Corporation in 1926. They were originally equipped with the customary reversible seats and seating capacity was provided for 74 people. In the remodeling of the cars, no change was made in the interior or exterior design, except to remove the reversible seats and redecorate the interiors. The smoking room, men's and women's saloons and the vestibules are the same as when the cars were originally built. A two-way swinging door separates the corridor leading to the men's saloon and smoking room from the main seating compartment. A wash-stand and mirror are provided for the men in the corner of the corridor at the end of the car, while somewhat more elaborate facilities for the women passengers are provided at the opposite end of the car. Racks for paper towels and vending machines for paper drinking cups are installed at both ends of the car.

Interior Decorations and Furnishings

The remodeled cars are provided with 39 wicker arm chairs arranged as shown in one of the illustrations. These chairs have rubber tips on each leg and may be moved to suit the desire of the occupants. They are designed to provide a person of average proportions with a comfortable seat, and have a width between the arms of 20 in.; depth of seat, 20½ in. and a height from the cushion to the top of the back of 19 in. The cushions and upholstered back coverings harmonize in color and design with the wall and interior finish.

The first car placed in this service was somewhat of an experiment to determine the reaction of the traveling public. It is decorated in light green and trimmed with dark green on the pilasters and sash. The window sills are done in tan, while the decorations, consisting of a simple floral design on the panels between the windows,



Floor Plan of the Central of Georgia Chair Cars

Each Car is Provided With 39 Wicker Chairs

are in light green, rose and tan. The floor is covered with brown battleship linoleum of solid color and the heater pipes are painted in a color to match the floor covering. The upholstery on the chairs is in figured mulberry brown.

The second car placed in this service is done in peach cream and trimmed in old rose with the sash and trim in the same color. The sills are finished in dark gray. Blue and tan decorations, of a design similar to that applied in the first car, are used on the panels between the windows. The floor is covered with solid green battleship linoleum with the steam-heat piping painted to match. The chairs used in this car are also upholstered in figured mulberry brown.

The third car, now operating between Macon and Atlanta, is done in a wine color and vermillion, with decorations in new rose and gray. The floor is covered with green battleship linoleum, as in the second car. The chairs are upholstered in figured royal blue.

All three of these cars present an attractive appearance, and have received favorable comment on the part of many patrons. It is reported that since these cars were placed in service, there has been an increase in the number of passengers on these two trains, part of which is attributed to the increased riding comfort provided by this equipment.

* * *

Heavy Freight Locomotive on the Great Northern

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading during the week ended May 18 amounted to 1,046,179 cars, an increase of 42,891 cars as compared with loading in the corresponding week of last year and of 18,681 cars as compared with the corresponding total in 1927. Headed by ore, all commodity totals showed an increase over the loadings a year ago, with the exception of grain and grain products. Three other commodities—livestock, coal and forest products—showed a decrease as compared with the totals in the corresponding week of 1927. Loading in the Southern district only was smaller in volume than a year ago. The summary, as compiled by the Car Service Division of the American Railway Association follows:

Revenue Freight Car Loading

Week Ended Saturday, May 18, 1929.

Districts	1929	1928	1927
Eastern	249,551	238,389	242,520
Allegheny	220,778	205,190	209,880
Pocahontas	58,410	56,565	60,960
Southern	142,430	146,772	153,491
Northwestern	161,476	149,971	156,970
Central Western	138,368	133,086	133,021
Southwestern	75,166	73,315	70,656
Total West. Dists.	375,010	356,372	360,647
Total All Roads	1,046,179	1,003,288	1,027,498
Commodities			
Grain and Grain Products	37,525	38,364	38,408
Live Stock	25,853	25,231	28,385
Coal	159,072	153,306	161,309
Coke	12,420	10,140	10,544
Forest Products	69,837	68,315	72,359
Ore	72,213	52,004	61,910
Mdse. L.C.L.	262,178	261,449	261,686
Miscellaneous	407,081	394,479	392,897
May 18	1,046,179	1,003,288	1,027,498
May 11	1,047,922	1,002,411	1,029,424
May 4	1,050,192	978,053	1,024,761
April 27	1,051,728	963,007	1,021,576
April 20	1,004,156	945,289	950,545
Cumulative total, 20 weeks	19,274,951	18,516,255	19,498,397

The freight car surplus averaged 203,467 cars during the period ended May 8, as compared with 220,821 cars on April 30. The total for this period included 93,426 box cars, 65,823 coal cars, 24,708 stock cars, and 12,376 refrigerator cars.

Car Loading in Canada

Revenue cars loaded at stations in Canada during the week ended May 18 totalled 67,461 cars, a decrease from the previous week of 784 cars and a decrease from the same week last year of 1,507 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
May 18, 1929	67,461	42,240
May 11, 1929	68,245	42,495
May 4, 1929	67,449	43,918
May 19, 1928	68,968	40,640
Cumulative Totals for Canada		
May 18, 1929	1,269,597	865,810
May 19, 1928	1,261,197	800,440
May 21, 1927	1,210,572	778,511

GRAY'S GABLES, an athletic club for Union Pacific employees at Laramie, Wyo., named in honor of Carl R. Gray, president of that railroad, was formally opened on May 20 by a party of railway officers that included Mr. Gray. The Union Pacific Athletic Club at Laramie has a membership of 500 employees.

LIEUTENANT COLONEL A. H. L. MOUNT, C. B. E., inspecting officer of the British Ministry of Transport for the past nine years, has been appointed chief inspector, in place of Sir John Pringle, who is retired by the age limit. Colonel Mount saw active service in France during the war, and in his earlier life was in the Locomotive Department of the Midland Railway; and he also saw service in India.

Time Values and The Railways*

Any saving in time means a tremendous economic benefit

By Dr. J. H. Parmelee
Director Bureau of Railway Economics

TIME is of the essence of all things, runs an old adage, and of no economic activity is that statement so true as of the operations of the railway industry. The value of time in certain operating factors is so apparent as to be obvious and patent to everyone without argument. But there are also factors where the element of time value is present, although to a much less obvious extent.

Take first the obvious factors. These are primarily the fact that railways must run their trains on schedule, where the time element is vital; the fact that a large number of railway employees must and do synchronize their work with train schedules, and must observe rigid time regulations; finally, the fact that so vast is the railway industry in scope and so widespread are its activities that every minute and even every second much service is being rendered to the country.

The less obvious factors may be summed up as follows: Practically every railway employee, whether directly engaged in transportation or not, is interested in time values, a fact I shall endeavor to bring out in some detail. Again, the time element enters into nearly all the efficiency factors of railway operation, making it an important item for study by all officials interested in effective railway methods. Last, but by no means least, the economic value of transportation to the nation depends in large measure on the speed with which the service is rendered, that is, the shortness of the time involved.

Train Operation Depends on Time

The most obvious characteristic of railway train operation is that it is on a schedules basis. While public schedules apply particularly to the passenger service, the custom of running important freight trains on the basis of a published schedule is growing. Some railways issue booklets describing their principal freight trains, and indicating the time schedules for each train. In many cases, these trains are named as well as numbered, and have taken their place in the railway Hall of Fame.

But whether schedules are published or not, every railway train must be operated according to a dispatcher's schedule. These schedules must be worked out for every train dispatcher and for every operating division, and the effectiveness of train movement depends largely on the degrees to which schedules are maintained.

To the railway operator, the vital importance of running trains on schedule is obvious. To the public, the maintenance of regular schedules is also vital. It is vital to the safety of operation, which spells increased safety and comfort for the passenger. It is important as an element of time saving, which means convenience and economy for the traveller.

So clearly is this recognized that many high-speed passenger trains are operated on an extra-fare basis, the passenger being ready to pay for the time he saves while en route. These trains are usually well patronized, indicating the money value that many passengers place on their time.

Again, the importance of regularly maintained train schedules is recognized by public authority, in that some regulatory bodies require reports from railways as to the percentage of trains operated on time during specified periods.

Transportation Employees and Time

It follows that a large proportion of the railway employee group must also operate on a rigid time basis.

Train operation proper is carried on by the large group of employees known as the train and engine service group. This group comprises enginemen, firemen, conductors, and trainmen, and last year aggregated 310,817 men. Two other groups are also classified as transportation groups. These are the yard and switching forces, who number 22,142; and those transportation employees other than train and engine men. This last group numbered 197,467, and included such classes as train dispatchers, telegraphers, station agents, and other station forces, flagmen, gatemen, truckers engaged in train loading and unloading, and other similar classes. In addition, many general classes of employees work in close conjunction with train operation, such as time-service inspectors, ticket agents, traveling auditors and inspectors, railway police, teamsters, motor-vehicle operators, and the like. General classes of this type numbered 23,094.

Combining the train and engine service employees, other transportation classes, and the general classes I have mentioned, we have a total of 553,520 railway employees whose activities are directly or closely bound up in train operation, and who must take train schedules and train-time values into account in their work. To them, time is indeed the essence of all things.

Significance of a Second of Time

Few persons realize the magnitude of our railway industry, or the far-flung scope of its activities. When I say that the railways last year handled more than a billion tons of freight, and that 447 billion ton-miles were produced in that operation, we find it hard to grasp the immensity of the service thus rendered. To bring these and other railway statistics within range of our mental vision, we may reduce the annual totals to an average per day, per hour, per minute, or even per second. Let us take the most fractional time element which the average layman can recognize—the second—and consider what the railways accomplish in that time.

During each second of each hour of each day last year, the railways of the United States

Handled 15,125 ton-miles and 1,000 passenger-miles.
Earned $1,936 in operating revenue.
Expended $1,402 in operating expenses, including $894 paid as wages to employees.

* Abstracted from an address before the Horological Institute of America, Washington, D. C., on May 8, 1929.

Paid $12.34 in taxes to the Federal, state and local governments.

"The greatest loss of time that I know," once said Rabelais, "is to count the hours." In a sense he was right, yet the railways by counting hours, and also minutes and seconds, have contributed greatly to the prosperity of the United States in the past nine years. What Shakespeare called the "inaudible and noiseless foot of time" has been measured by railway managers, its stride has been lengthened by speeding up railway operation, and we shall shortly listen to its "inaudible" movement by considering recent railway records.

Time and the Non-Transportation Railway Employee

Before I present this phase, however, I will return for a moment to the million or more railway employees not included in my analysis of the 554,000 employees who are engaged in transportation operations. The facts show that all railway employees have a collateral interest in the time element. To indicate this, let us analyze the character of work done by the non-transportation group, aggregating last year 1,126,667 persons.

This total comprises the following principal groups:

Maintenance of way	400,198
Maintenance of equipment	461,285
General and clerical	248,294
Executive	16,890
Total	1,126,667

Take these groups in order. Maintenance of way employees, 400,000 in number, are intimately connected with train operation, because a large part of their work of repairing roadway, tracks, bridges, and other structures must be synchronized with the movement of trains. They must know the train schedules, and so plan their work that trains will not be delayed, or will be slowed down to the least possible extent. Second, the work of the maintenance of way department is vital, in that they provide the track over which trains operate, and are responsible for the good condition of that track. What this means to safety and speed of operation can easily be seen.

Take next the 461,000 maintenance of equipment employees. Equipment employees must also accommodate their work to the movement of trains, to the extent that they adjust their work according to the number of miles each locomotive has traveled since the last shopping, and according to the shifting of cars back and forth over the lines. In addition, it is their duty to keep the physical condition of all equipment at the highest possible level, so that locomotives may run without breakdowns, cars and their axles, brakes, and other accessories may run efficiently, and train schedules be maintained without delays.

What now of the more general and clerical group, numbering 248,000? More than four-fifths of this group consist of clerks, accounting men, and other types of office workers, whose work may not at first thought seem closely related to train movement and to the time element. Yet they are the recording agents for train operation, and their records must run with the train, or delay and confusion results. For example, the rate clerks must keep up with the stream of more than 200,000,000 waybills pouring out of the freight offices each year, and their work of revision and compilation helps or retards the prompt payment of the bills, according as it is efficient or inefficient. Books must be kept concurrently with the traffic, and these books are closed at periodic intervals for audit and for reporting purposes.

The railway industry, more than any other industry, is required to file regular reports with regulatory bodies in the nation, the several states, and even with local government agencies. All these reports are required within specified time limits, which must be observed under penalty of a fine for overstepping the regulations.

A recent case before the Interstate Commerce Commission has centered on the question of the time to be allowed for the payment of railway freight charges. Some of the questions involved in this case are as follows: Shall a shipper be allowed 24 hours, 48 hours, 96 hours, or more for the payment of his charges? Shall the time run from the delivery of the freight or from the mailing of the bill? If bill is mailed after 4 p. m. shall it be considered as delivered that day or the next day? These and other questions have been actively discussed, all involving the time element and all being recognized as worth millions of dollars a year to one side or the other, according to the rulings made by the commission. In this case the treasurers of the railways, the accounting officers, and many of the clerical forces, all included in the general group of railway employees I am now discussing, have been interested participants.

The final group is made up of the executive classes, and numbers 16,890 persons. If the several groups under the direction of the executives are all interested in the time factor of railway operation, it follows that the executives are involved to the same extent. Theirs is the final responsibility to conduct train operation in such a way as to make it speedy, adequate, and safe.

So in a large sense, and looking at the matter broadly, every class of railway employee—the whole 1,700 thousand of them—are more or less definitely bound up in the time factor of railway operation. Disrupt the working schedules of any class, and the result will soon be manifested in every train on the line, slowing down the tempo and breaking down the morale.

Railway Efficiency and Time

It is clear that effective operation of our railways, considered in the final result, consists of the speedy movement of trains, and the prompt handling of freight and passengers. Many single factors enter into this final result, factors that are commonly regarded as the yardsticks of railway efficiency, and the time element is involved, to some extent, in the majority of these factors.

In discussing this feature, we may limit ourselves to a list of fifteen efficiency factors frequently utilized as measures or indices of operating effectiveness on the railways. Nine of these involve the time element, the other six relating to the load per train and per car, and to the physical condition of the equipment. The nine factors are as follows:

1. Freight train speed (miles per hour).
2. Freight locomotive-miles per locomotive-day.
3. Passenger locomotive-miles per locomotive-day.
4. Freight car-miles per car-day.
5. Gross ton-miles per train-hour.
6. Net ton-miles per train-hour.
7. Net ton-miles per car-day.
8. Pounds of coal per 1,000 gross ton-miles.
9. Pounds of coal per passenger train car-mile.

You will note that a word denoting time appears in the title of the first seven of these nine factors, the word being either "day" or "hour." In the case of the last two, the time element is not so apparent, yet is inherent in them.

In discussing these factors separately, I will indicate with respect to each the progress or improvement that has been made by the railways since 1920. As you may know, this period of about nine years since the railways emerged from war-time operation by the government has exhibited a remarkable forward movement in railway efficiency. These factors all bear evidence to that fact, and I shall later indicate what this progress has meant to the nation in the form of economic benefit.

Freight train speed. This factor, measured in terms of the average mileage made by a freight train for each hour between terminal and terminal, rests fundamentally on the time element. The distance covered, divided by the elapsed time, produces the result. This factor has risen from 10.3 miles per hour in 1920 to 12.9 M.P.H. in 1928, or 25.2 per cent. To date in 1929, there has been a further improvement over 1928.

Freight locomotive-miles per locomotive day. This factor, together with the corresponding factor for passenger locomotives, indicates the average daily movement of engines in train service. These two factors averaged about the same in 1928 as in 1920, but if allowance be made for the greater proportion of locomotives held in reserve storage in 1928, there was considerable improvement over 1920. Both factors have also shown appreciable improvement to date in 1929.

Freight car-miles per car-day. This is another factor directly involving time and speed. The factor has shown a marked increase, from 25.1 miles per car-day in 1920 to 31.3 miles in 1928, an improvement of 24.7 per cent. There has been a further increase of nearly 8 per cent so far in 1929.

Gross ton-miles per train-hour. This factor involves the loading of a freight train, the tare weight of the cars, and the speed at which the train travels. It indicates the total weight moved a given number of miles in the course of an hour of time. This factor corresponds closely to the next one—net ton-miles per train-hour—which measures the weight moved one mile in an hour by a freight train, exclusive of tare weight. Both these factors have increased markedly since 1920, the percentages of improvement being 59.0 per cent in the case of gross ton-miles per train-hour and 39.8 per cent in the case of net ton-miles. Both factors have also shown further improvement in 1929, to date.

Net ton-miles per car-day. This factor is the weight in a freight car, multiplied by the number of miles traversed by the car in the course of the average day. It involves units of weight, distance, speed, and time. The factor has improved from 498 in 1920 to 526 in 1928, a gain of 5.6 per cent. This year to date there has been an added gain of 10 per cent.

Fuel consumed. The final two items relate to the consumption of fuel by locomotives in the freight and the passenger service. The time element enters into these two factors through the fact that one reason for the improvement that has taken place is the reduction of delays between terminals, that is, increased average speed per hour. Again, delays at the terminals have been much reduced by making the runs longer, thus avoiding the necessity of wasteful consumption while awaiting a load, and also reducing the number of times an engine is fired and is dumped in the course of a month. These and other matters involving time have led to a large gain in fuel conservation. Between 1920 and 1928 fuel consumption per unit of result was reduced—that is, improved—by 26.6 per cent in the freight service and by 20.2 per cent in the passenger service.

Economic Value of the Time Factor

To evaluate the time element in railroading is not easy, but a few comments will indicate its tremendous importance to the railways and to industry.

Taking the average distance moved by a freight car in a day, for example, it has been estimated that every mile added to that daily average is equivalent to adding 100,000 freight cars to the total railway freight equipment. The increase of more than five miles per day since 1920 is thus equivalent to 500,000 freight cars. In other words, we are handling more freight traffic with fewer cars today than nine years ago, principally because car movement has been speeded up. Trains are moving faster, and delays—that is, wastes of time—have been reduced. The virtual addition of 500,000 cars to the railway plant through this speeding up means a saving of perhaps $750,000,000 in new capital, $45,000,000 in the annual cost of such capital, another $30,000,000 to $40,000,000 for annual depreciation charges, and $75,000,000 for repair charges per year.

Take the item of reduced fuel consumption. A recent estimate indicates that every reduction of a pound of coal per 1,000 gross ton-miles represents a saving of more than $3,000,000 per year in the railway fuel bill. The reduction of more than 30 pounds from 1920 to 1928 was thus equivalent to a reduction of perhaps $90,000,000, an appreciable part of which is due to the reduction of time waste in the use of fuel.

Again, the increased speed with which goods are now moving by rail, as compared with eight or nine years ago, has contributed hundreds of millions of dollars annually to industry. Just how much cannot be computed, but it is generally recognized that the benefit to our economic activity has been almost beyond measurement. Industrial processes have been speeded up, delays due to irregular transportation service have been cut to a minimum, car shortages have disappeared, car congestion (that is, delayed movement and waste of time) is a thing of the past, and the necessity for carrying large industrial stocks by manufacturers, wholesalers, and retailers has been much reduced.

In an article in Harper's Magazine in 1923, Charles Pierce Burton estimated that reducing the average time of goods in transit one day alone would reduce the annual interest charge against those goods by more than $18,000,000. As a matter of fact, the average turn-around time of a freight car today is probably one-third less than eight or nine years ago, and the interest charges alone so saved the shippers must be at least $50,000,000 per year. In addition, they are saving the excess cost of carrying unnecessarily large stocks, which would doubtless aggregate hundreds of millions in capital tied up and in annual interest charges.

So does the value of a minute of time in railway operation, when multiplied by the millions of daily movements, mount up into tremendous amounts of economic gain to the country. So does the "inaudible and noiseless foot of time" make its footprints sink deep into the transportation consciousness of the nation.

Welding Discussed by Master Boiler Makers

At the technical sessions of the Master Boiler Makers' Association convention held at the Atlanta-Biltmore Hotel, Atlanta, Ga., May 21 to 24, the most important general discussions occurred in connection with the subject of "Fusion Welding as Applied to Locomotive Boilers" and on "The Problem of Corrosion and Pitting." The subject of fusion welding was introduced by J. A. Doarnberger, master boiler maker, Norfolk & Western, who in his report made the following statements:

"Each year the decrease of radical innovations in the welding art, we believe, may be correctly interpreted as indicating a sane, normal progress and a healthy condition of stability that insures the art a more and more important position in industry as time passes. This does

not mean, of course, that no further development is to be expected; on the contrary, now that the primary experimental stage is definitely a thing of the past, and as the application of the art has become more general, and as more minds consequently are focused upon the subject, we should expect a uniform and gradual progress —a progress that will differ from that of the past, in that instead of being marked with startling innovations, it will consist of a cumulative series of gradual refinement of practices and extension of applications.

"On all sides we find evidence that this phase of the development of the welding art is already well under way. As an illustration, we will consider an example of boiler construction that in its field is probably the outstanding accomplishment of the past year, and with which a number of you are already familiar. The case referred to is that of the 2-8-8-4 type single-expansion articulated locomotive, built for the Northern Pacific by the American Locomotive Company.

"There are a total of 229 ft. of welded seams in the firebox, and in addition, a total of 575 ft. of external welding; and 169 ft. of internal welding in the barrel section of the boiler as a sealing feature at seam edges; making a total of 973 ft. of welding employed in the construction of this boiler.

"It is quite gratifying to your committee that the development of welding is now apparently being carried along conservatively. Fewer hit-or-miss methods are being employed, but our past experience has been sufficiently broad to enable us to study the question scientifically and we may expect from now on definite and steady progress; and it is essential that no stumbling block be put in the path of this development."

The subsequent discussion from the floor of the convention stressed the importance of maintaining careful supervision over the welders and conducting frequent efficiency tests of their work. The human element is the determining factor in the matter of safe welding and while, in general, better results are now being obtained on locomotive work, there are still many examples of poor welding where supervision has not been maintained. A warning was sounded by representatives of the Bureau of Locomotive Inspection to proceed with the utmost caution in applying the process to locomotive boilers.

As has been customary in recent years, the courtesy of the floor was extended to a group of water-service engineers in order that they might explain the advances recently made in combatting boiler corrosion and pitting. Among these Dr. C. H. Koyl of the Chicago, Milwaukee, St. Paul & Pacific, S. E. Johnson of the Chesapeake & Ohio, R. E. Coughlan of the Chicago & North Western, and several others outlined the work being carried out in this connection on railroads of the country.

Address of L. R. Powell, Jr.

The features of the Thursday afternoon session at which members of the Southern and Southwestern Railway Club were in attendance, were addresses by L. R. Powell, Jr., president of the Seaboard Air Line, and John M. Hall, assistant chief inspector, Bureau of Locomotive Inspection, acting for A. G. Pack, chief inspector, who was unable to be present. In his remarks Mr. Powell stressed the necessity of making savings in material and in labor in conducting locomotive maintenance operations. He went on to state:

"Material purchased for use is a definite subtraction from the treasury. If it is not used, it is a dead loss. If it is not properly used or does not serve the purpose for which it was purchased, it is a partial or a total loss. In 1928, with the gross revenues of something over six billion dollars, nearly a billion and a quarter dollars were spent for maintenance of equipment which, of course, included labor as well as material. From this you will note that the money spent for maintenance of equipment was approximately 20 per cent of the gross revenues of the railroads and equalled the net return earned on their capital investment.

"There is an erroneous opinion current, even among those who should be better informed, that railroads are owned by a small group of moneyed interests and that they are earning unreasonably large returns on the investment. Both of these views are false. While I have not the latest figures before me, I believe I am safe in saying that there are practically a million individual holders of railroad capital stock. These figures do not take into account the millions or more of railroad bondholders scattered all over the United States whose interest in the financial success of the railroads is equally as great as that of the stockholders.

"I wish to take this opportunity of placing before you a matter of greatest importance to the railroads and that is the continually increasing taxes which they are obliged to pay. For a number of years railroad taxes have exceeded railroad dividends. Taxes paid by railroads have increased nearly 300 per cent in the last 17 years, while dividends have increased something over 25 per cent. In 1911 the railroads paid taxes aggregating ninety-nine million dollars. In 1916 they were one hundred fifty-seven million. In 1928 they were three hundred ninety-five million, an increase of 300 per cent over 1911. More than three fourths of these taxes are levied by state and local governments.

"May I ask that you give this condition your most earnest consideration, bearing in mind that not only should the distribution of the tax burden not bear unduly on the railroads, but that in the administration of your state and municipal governments an effort should be made to supervise expenditures so as to secure a dollar's worth for every dollar expended."

Election of Officers

At the meeting Friday morning the following officers were elected for the coming year: President, George B. Usherwood, supervisor of boilers, New York Central, Syracuse, N. Y.; first vice-president, Kearn E. Fogerty, general boiler inspector, Chicago, Burlington & Quincy, Aurora, Ill.; second vice-president, Franklin T. Litz, general boiler foreman, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee, Wis.; Third vice-president, O. H. Kurlfinke, boiler engineer, Southern Pacific, San Francisco, Cal.; fourth vice-president, Ira J. Pool, district boiler inspector, Baltimore & Ohio, Baltimore, Md.; fifth vice-president, L. E. Hart, boiler foreman, Atlantic Coast Line, Rocky Mount, N. C.; secretary, Harry D. Vought, 26 Cortlandt street, New York; assistant secretary, Albert F. Stiglmeier, general foreman boiler maker, New York Central, Albany, N. Y., and treasurer, W. H. Laughridge, general foreman boiler maker, Hocking Valley, Columbus, O. Albert F. Stiglmeier was elected chairman of the executive board.

In the State of Colorado during the past eight years 73 main line railroad crossings on state highways have been eliminated or are in process of elimination. Eleven were eliminated by the construction of underpasses, five by overhead structures and 57 by route changes. When the projects included in the 1929 highway budget are completed there will be only one grade crossing over a main railroad line on the principal north and south highway through the state.

Cutting Down Grain Door Costs

Baltimore & Ohio reclamation plan results in annual saving of $140,000

By Herbert Corkran
Traveling Disbursement Auditor, Baltimore & Ohio

DURING 1925 and 1926, the sum of $321,486 was charged to train supplies and expenses, for grain doors on the Baltimore & Ohio. During 1927 and 1928, the same account was charged with $53,319 representing a saving of $268,167. The stock of grain doors now on hand is worth $15,000 more, so that the total economy in the past two years has been $283,167. During 1925 and 1926, the net cost to the B. & O. for car door protection on each grain car handled was $3.05, as compared with $0.59 in 1927 and 1928, a saving of $2.46 per car, or a decreased cost of 80 per cent.

About three years ago some of the officers of the B. & O., while discussing freight claims, mentioned grain doors, and some one wanted to know what happened to all of the grain doors that this railroad must dispose of as the delivering carrier. Some investigations were made and several interesting things developed, but it was soon seen that the subject was a much bigger one than was anticipated and the task of going into it thoroughly and bringing out all the possible facts and conditions was assigned to a special representative of the accounting department.

Where the Grain Doors Went

After an exhaustive investigation, it was found that during the year 1925 there were originated on the B. & O., 15,549 cars of grain, requiring 124,392 doors and that during the same period 24,546 cars of grain were received from connecting lines, of which number 23,318 were unloaded on B. & O. rails and from these cars, we should have reclaimed approximately 140,000 grain doors, allowing for the usual run of breakage which would render the door unfit for further service. During the same year we purchased 86,500 grain doors and, adding to these the doors we should have reclaimed, we should have had on hand as of December 31, 1925, about 172,000 doors for the 1926 grain movements. Based on the number of doors applied by the B. & O. in 1925, this should have been ample for our 1926 requirements, with a margin of about 45,000 doors for safety. In other words, we should have gone through the year 1926 without having to buy a single grain door. But what happened in 1926 was really this, that we had to go into the open market and buy 92,200 new doors at 80 cents each, for a cash outlay of $73,760.

Doors Are Strongly Made

The question arose as to why this should be. The standard grain doors used by the B. & O., as shown by the accompanying illustration, are strongly made, and there is no reason why, with reasonable handling, they should not serve for ten or more trips before actually wearing out. But it had been the custom to regard these doors as worthless after they had served one trip. So they were disposed of, without price, to any one who cared to carry them off. We found them used for every conceivable purpose outside of railroad service; garages, chicken houses, board walks, pleasure shacks along our river shores, mortar boxes and a multitude of other things were built from them. The winter wood-pile of many a family consisted altogether of grain doors broken down to stove size and used, not only for heating the house, but also to cook the meals.

Car Door Protection Bureau Established

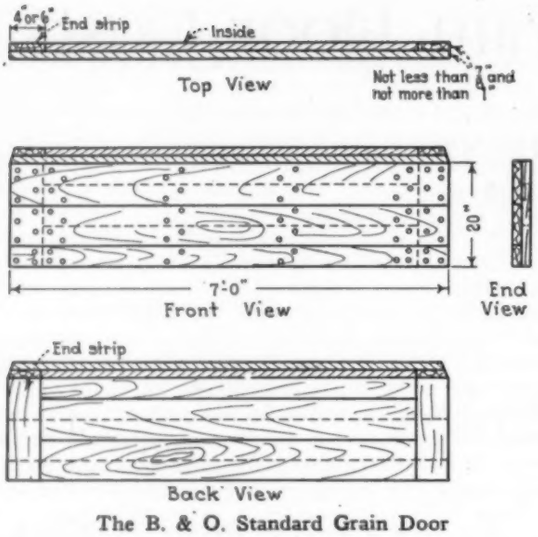
It was felt that here was a waste that could be readily checked and converted into a profit and it was decided to establish a bureau of car door protection in the office of the auditor disbursements with a view to conserving grain doors and other lumber used as car door protection material. This bureau began to function on September 1, 1926, and certain rules and regulations were promulgated and issued to all agents along the line, setting forth very clearly what they were to do with grain doors in the future.

The first thing called for was an inventory of grain doors at all stations on September 1, 1926 (and it did not require much time or labor to do this, as there were only a comparatively few doors found). With that as a basis we opened an account on the ledgers called "Car Door Protection" and charged these doors on hand to that account, at the same time crediting their value to the operating expense account known as No. 402—"Train Supplies and Expenses." Prior to this time all grain doors were charged to this operating expense account as soon as they were issued by the storekeeper, which was an error, because we were thereby burdening operating expenses with something they had not consumed. As a matter of fact, it had only too often happened that many of the doors supplied the agencies were taken by outsiders before the agency had a chance to use them; and operating expenses had to stand this burden also. For these reasons the doors on hand as of September 1, 1926, were credited back to operating expenses as representing an offset to something that had been improperly charged to those accounts in the past.

Inventory Statements Required

The next step was to require the agents to send in an inventory statement each month of the grain doors on hand at the beginning of the month, those received during the month, either from the storekeeper or as reclaimed from cars unloaded, the number of grain doors used during the month on outbound shipments, and the number on hand at the close of the month. Each agent starts his monthly report with the same figures as to the number of grain doors on hand as those with which he closed his previous month's report.

The agents are also required to send in copies of all waybills covering outbound movements that needed



The B. & O. Standard Grain Door

grain doors, and to show on these waybills the number of doors used. This information is very valuable because when the shipment goes beyond our rails and is delivered by a foreign road, a claim is made against the foreign road for its proportion, based on the revenue earned, of the number of doors used, at a rate of 85 cents per door. For instance, on a shipment originating on the B. & O. and ending on a foreign road, on which the revenue divides equally between the carriers, we would make a claim against the foreign road for 50 per cent of $6.80 (8 grain doors at 85 cents each) or $3.40, and the foreign road settles on that basis. Where the shipment originates on a foreign road and ends on the B. & O., this condition is reversed and we pay the claim, but we also acquire the grain doors. As the B. & O. is a large delivering line because of its tide-water export connections, we receive many times more grain doors from foreign lines than the foreign lines receive from us, and, as our investigation has developed that we acquire these doors at an average cost of something less than 30 cents, it is evident that there is a large saving, when it is remembered that these doors, if bought new on the open market, cost 80 cents. When the shipment originates and ends on the B. & O. the waybill is used to check up on the receiving agent to see that he reports the grain doors reclaimed.

When we find an agent overstocked with doors and these are not needed immediately by him or at some other point, we ship the surplus to the nearest storekeeper who takes care of them until he finds it necessary to make distribution on requisition.

By this systematic reclamation and accumulation of grain doors, the transfer of supplies from points where they are not needed to points where they are required is facilitated, eliminating the purchase of new doors costing approximately $75,000 a year.

THE "ROYAL YORK," the new hotel of the Canadian Pacific at Toronto, Ont., is to be opened on June 11, with ceremonies by officers of the road and with the attendance of Lord Willingdon, Governor General of Canada. This hotel, the largest within the British Empire, is 28 stories high and has cost about sixteen million dollars. It has 1060 rooms and 18 dining rooms. There is a convention hall seating 4070 persons and a banquet hall seating 2,720.

* * * *

Wide World

Classification Yard at Longueau, Near Amiens, France

Report of New York Regional Plan Committee

Co-ordination of transport facilities involving series of railway belt lines to serve region, included among proposals

THE Regional Plan Committee of New York and its environs at a meeting on May 28 made public its plan designed to meet the needs of New York City and the contiguous area within a radius of 50 miles and to provide for an estimated 1965 population of 20,000,000. The work of the committee was sponsored by the Russell Sage Foundation and the territory considered includes Greater New York, northern New Jersey, Long Island, all of Westchester, Rockland and Putnam counties and southwestern Connecticut.

In addition to those portions of the report dealing with highway, airport, rapid transit and other facilities there is a section dealing with steam railroads. In this latter connection the plan assumes that Manhattan will remain the population center of the region, but that it will be closely rivalled by the Western tip of Long Island and the communities on the west bank of the Hudson. It is expected that New Jersey will grow with great rapidity when its transportation facilities are developed and its waste lands, prominent among which are the Hackensack meadows, are reclaimed.

Studies made by the committee show that about two-thirds of the railway passengers brought into the city are commuters. The remaining third, numbering at the present time nearly 100,000,000 annually it is estimated will have increased to about 270,000,000 by 1965. Freight traffic is expected to grow at about the same ratio.

Railway Belts and Terminals

To meet this growth, as well as to provide improved facilities for existing traffic, the plan begins by laying down a great outer belt line, passing around the heart of the region, through New Jersey, Long Island, Westchester County and a corner of Connecticut, at an average distance of about twenty miles from the New York City hall. All railroads entering the region will be connected with this belt line, which will be partly new construction and partly along existing railway lines.

As proposed it would pass through or near Greenwich, Port Chester, Sparkill, Paterson, Summit, Plainfield, Metuchen, Perth Amboy, St. George, Bay Ridge, and the western section of Brooklyn, crossing the Hudson river, Arthur Kill, the Narrows and Hell Gate. Branches would connect Richmond with Bayonne, link up the expected industrial development around Jamaica Bay and give service to Queens. By means of this belt line and its connections any car from any railway could be switched to any point along the outer rim of the region. Car ferries would become obsolete.

Three inner loops are proposed. One would circle the Jersey shore opposite Manhattan. A second, using in part the existing rights of way of the New York Central, would run down the West Side of Manhattan to the Battery and up the East Side under the Bowery and Third Avenue. Practically all of it would be underground. The third loop would serve Brooklyn and Queens, passing under Newton creek, connecting with the Long Island at Long Island City and reaching the New York Connecting Railroad at Woodside. Each of the inner loops will be linked up with the outer belt lines.

The details of the plan contain features which are themselves major projects. One suggested line would run from Bogota on the New Jersey belt line across the Hudson River bridge at Fort Lee, across Upper Manhattan, over the Harlem river on a new bridge and connect with the belt lines in the Bronx and Westchester.

Another would leave the New Jersey belt line at New Durham and connect with Queens by a crossing of the Hudson and Manhattan Island in the latitude of Fifty-seventh street.

Still others would connect Jersey City with Staten Island by means of a new crossing of the Kill Van Kull, and with Brooklyn and Queens by means of a tunnel passing under the Hudson river, the tip of Manhattan and the East river. These lines and their branches, it is pointed out, would bring every railhead in the region into direct touch with salt water.

Passenger service would be provided for by new terminals. New Jersey would have six on the inner belt line—at Paterson, Hackensack, North Bergen, Jersey City, Newark, and a point in Clifton southwest of Passaic. Manhattan would have a new terminal in the neighborhood of 178th street and Amsterdam avenue and probably another at Sixtieth street and the Hudson river. The Bronx would have a terminal at 149th street and Mott avenue. Queens would have one near Queens Plaza, Brooklyn would have one near Prospect Park Plaza, and one is planned south of Port Richmond.

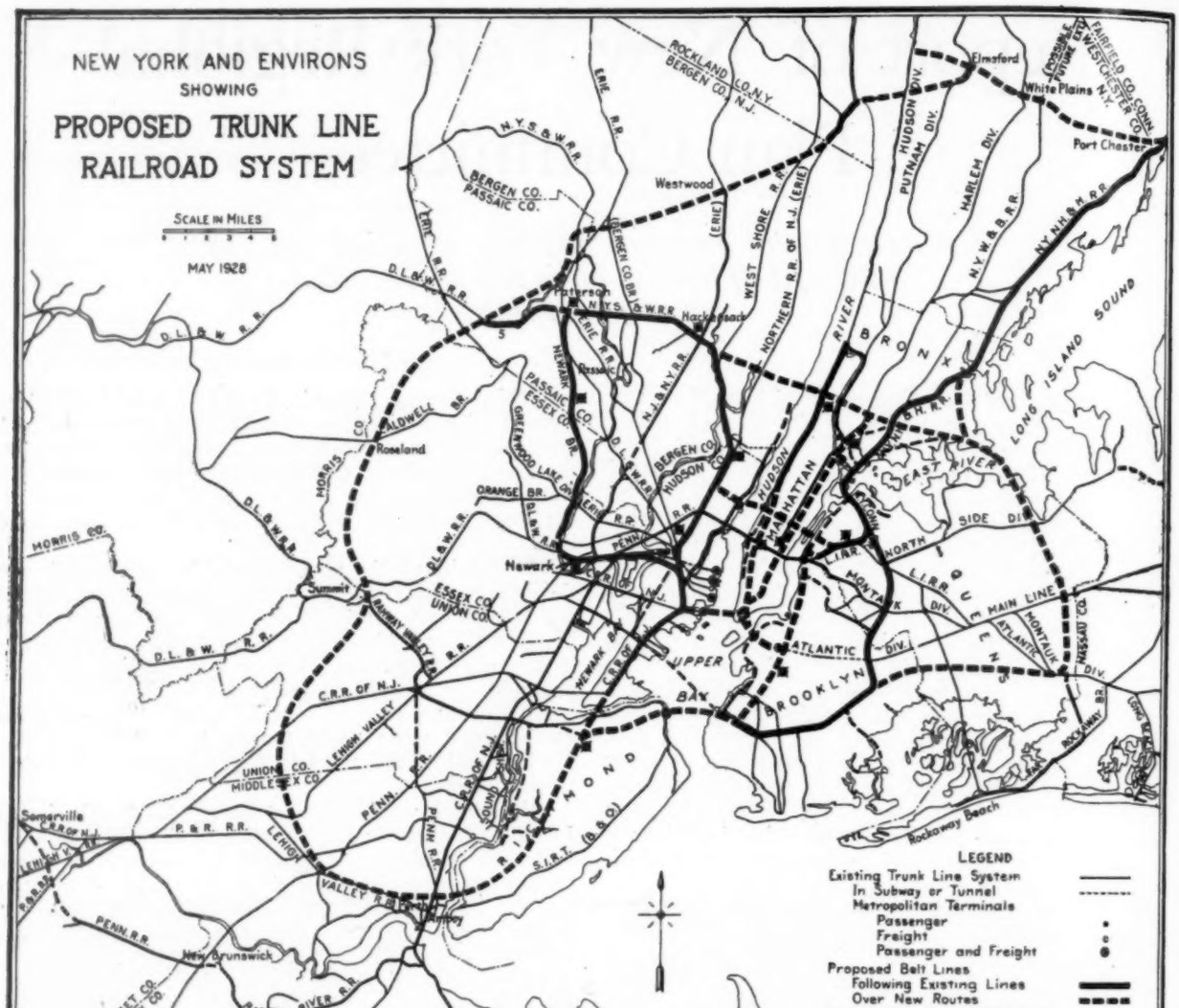
By the aid of these terminals and the lines which would serve them it is suggested that a passenger coming into the region by trunk line railroad would be taken directly, without change of his means of conveyance, to any community in the fifty-mile radius.

Rapid Transit for Communities

Commuting traffic is given an almost entirely new rapid transit system, which it is expected will in most cases carry the commuter from within walking distance of his home to within walking distance of his job. It is proposed that the new system be equipped to carry 425,000 commuters daily by 1935, or more than a third more than are now carried.

The growing importance of New Jersey is indicated by the estimate that by 1935 nearly half of the commuting traffic will be coming from that side of the Hudson river.

The first step proposed is a loop connecting Manhat-



tan and New Jersey, hooked up on the East with the Long Island Railroad and on the North with the New Haven and the New York, Westchester & Boston. This would require tunnels under the Hudson at Fifty-seventh street and at a point near the Battery and other tunnels under the East and Harlem rivers. A belt through New Jersey would cover much the same territory as that covered by the trunk-line loops, though it would be entirely independent of them. Another loop would circle through the Western part of Long Island and similar lines serve districts north of the Sound.

The plan suggests that the commuting lines for the entire region should be operated as a unit. Passengers would be brought into, or across, Manhattan from Connecticut, Westchester, Long Island, New Jersey and the upper counties along the Hudson. Those coming into Manhattan would be distributed by means of the Manhattan loop, running through deep tunnels independent of the subway systems.

At the beginning commuters coming in from New Jersey on existing railroads not yet electrified would have to change cars in order to enter the main system, but as the railroads from the North and East are already electrified their trains could be shunted at once into the new tunnels. Under unified operations it is suggested that trains could be run through the entire system so that the switching and storing of empty cars might be reduced to a minimum.

* * *

On the Electrified Section of the New Haven

Russian Railways Being Rehabilitated*

Steady progress in improving equipment and roadbed, as well as in adopting approved methods of organization and operation

By Charles Muchnic

BEFORE the World War two-thirds of the entire Russian railway system was owned and operated by the Russian government under the direction of a Ministry of Railways. At that time the Russian railways were not quite up to the standard of efficiency and equipment as compared with the railways in western Europe or the United States. During the World War they were subjected to a very severe strain. Neither the roadbed nor the motive power and rolling stock were in a position to cope with the burdens imposed upon them.

Although upwards of a 1000 locomotives and many thousands of cars and a large tonnage of American rails were shipped into Russia during the war, the transportation plant of that country broke down under the strain imposed upon it, just as the entire industrial plant of Russia was found wholly inadequate to meet the emergency. This may have been, and doubtless was, one of the many important factors which caused Russia's withdrawal from active participation with the Allies in the war against the Central Powers and brought about a separate peace with Germany in 1917.

Complete Breakdown in 1920

After the Russo-German peace treaty there followed three-and-a-half years of civil war, as well as wars of intervention by the Allied and associated powers. The revolutionary government was attacked on several fronts by the Allied troops independently or in cooperation with the remnants of the Tzar's troops and adherents to the old regime. During these years of civil war the demoralization of the railways continued with even greater force than during the World War and according to American observers in Russia in 1920 and 1921, as well as according to Russian records, the breakdown of the transportation system was so complete that at the close of the civil war there were only available some 4600 serviceable locomotives out of a total number of 14,500 and 215,000 freight cars out of a total of 537,000. According to these same accounts it took to travel by railway a distance of some twenty kilometers as many hours.

There were no materials to make the necessary repairs to the equipment; when a locomotive required repair parts other locomotives were robbed of such particular parts to put the one engine in a serviceable condition. In the central part of Russia there was lack of fuel and freight cars were stripped of their wooden superstructure to provide fuel for the few trains that were in operation. Whereas in 1913 the average daily loading was about 35,000 freight cars, towards the beginning of 1919 this figure was reduced to a daily average of about 5000 cars.

In spite of the reduction of the railway mileage of from 53,290 kilometers to 28,665, due largely to the loss of territory and the temporary abandonment of considerable mileage of railway, the number of employees on the railway was very materially increased; in 1913 there were 815,502 employees, or approximately 15.3 employees per kilometer; in 1921 there were 1,229,000 employees, or 20.7 per kilometer.

This brief reference to the frightful state of demoralization of the railways in Russia in 1920-21 is necessary in order to appreciate what has actually been accomplished by the present railway administration during the past eight or nine years.

Conditions Greatly Improved

The number of permanent and temporary employees on the railways during the year 1927-28 was 1,070,000. This shows a considerable reduction over 1921 and compares favorably with 704,000 employees on the German State Railways whose mileage is 36,280 as against 48,125 for the U. S. S. R. (Union of Soviet Socialist Republics) railways.

The present railway system in Russia comprises 77,000 kilometers, or 48,125 miles, which shows a considerable increase over the pre-war mileage; railway construction is proceeding at the rate of several thousand kilometers a year. I found the motive power and rolling stock in good condition. Since the close of the civil war Russia had obtained from abroad only about 1000 locomotives and some 500 steel tank cars. With their own manufacturing resources they were able to repair and add to their rolling stock bringing the total to upwards of 500,000 serviceable cars and 14,519 locomotives. The number of locomotives awaiting general and classified repairs is about 14 percent, which compares favorably with the percentage of locomotives awaiting repairs on our own railways.

Five-Year Improvement Program

New railway lines are projected to open up entirely new territory and a large number of branch and connecting lines are being built to join up and make more efficient the existing main lines of the railway system. It is of interest to note that the program of the Ministry of Railways for the ensuing five years provides for the construction of 20,000 kilometers, or 12,242 miles. Of this mileage 9094 is to be completed and open for service within a five-year period.

The U. S. S. R. comprises an area several times that of the United States and has a population of 154,000,000, but its railway mileage is only about a sixth of ours. At present there is about one mile of railway for each 3166 inhabitants as against approximately one mile of railway for each 400 inhabitants in the United States. For many years to come there will be considerable railway construction and expansion in Russia.

* Mr. Muchnic has just returned from a visit of several months to Russia in the interests of the Baldwin Locomotive Works, during which time he traveled over 6,000 miles of railroad in that country.

There are few countries in the world where railways are more urgently needed and where they are more likely to be promptly built than in the present Soviet Russia.

The Soviet government and its official spokesman are fully aware of the inadequacy of the present railway system and also of its backwardness compared with the efficiency of railways in western Europe or the United States. Since the close of the civil war and the abandonment by European powers of their efforts to depose the present government its leaders have directed their utmost energy towards reconstructing the railways with whatever means they had at their disposal. The results accomplished without any outside assistance are worthy of the highest commendation.

Rebuilding Permanent Way

Comparatively greater effort has been made by the Soviet officials in increasing the output of their industries in order to be able to obtain the necessary materials and manufactures for the railways and other home requirements. On this account the railways were partially neglected during the past few years and this neglect is quite apparent in the railways' permanent way. The rails are light and over 27 percent of all of the ties require replacement. Rail and tie replacements were quite inadequate during the war and were entirely neglected during the period of civil war; during the last two or three years less than half of the normal requirements of rail replacements took place. Beginning with this year considerable tonnage of the heavier or 105 lb. rail will be laid to replace the light rail; likewise there will be greater tie replacement. It has been the custom in the past to use ordinary ties; this year all the ties to be replaced will be creosoted or treated.

The plans of the railway administration are to gradually so rebuild the permanent way as to permit the operation of very much heavier motive power and rolling stock. The goal is to approach the type and size of equipment that was standard on our railways some few years ago. This will involve many radical changes in the rolling stock for which ample financial provision is being made for the ensuing five years. Most of the railway mileage I covered was over dirt roadbed and there is comparatively very little of rock ballasted road.

The first-class sleeping cars in Russia are very comfortable; due to the wider gage and larger railway clearances their compartments are much roomier than those of cars in service in western Europe. The average speed of the trains is considerably lower than that obtaining in this country or in France or England. It is doubtful if any material increase in speed can be made until the changes planned for road reconstruction are effected and more motive power is put in service. Most of the through trains have dining cars on which a palatable meal can be obtained at a reasonable price.

So far as the financial resources of the railways permit, new and modern machinery is installed in their railway shops. Considerable thought is being given by the railway management towards greater concentration of the repair shops and in the reduction of the cost of repairs.

All the repair shops of the railways—53 in number and employing 90,000 men—were placed, early this year, under the direction of one central office. This will afford a better check on the comparative efficiency of the various repair shops. Some shops will be closed, others enlarged and the intention is to assign to each shop certain types of equipment for repairs to permit of greater specialization and thereby a reduction in costs. Some shops are grouped under a single management to assure greater efficiency.

Low Operating Ratio

The Railway Administration is continually striving for greater centralization of all operations for standardization, and the reduction of operating expenses. That the railways have met with a fair degree of success in this direction is indicated by the fact that until seven or eight years ago they were in a completely demoralized state and barely earning their fixed charges. They have within the last five or six years succeeded in annually reducing the operating ratio and this without any material increase in freight or passenger rates. Where three or four years ago the operating ratio was between 85 and 90 it was reduced last year to 75 and a fraction, and during the month of March of this year it was reduced to 74.3. This compares favorably with the average operating ratio of all of the railways in the United States which during the past year was approximately 75.

The gross revenue shows a corresponding increase from year to year, particularly beginning with the year 1924-1925. During that fiscal year the gross revenue of the railways was 321 million dollars. During the fiscal year of 1926-27 this revenue was increased to approximately 800 million dollars and during 1928-29, partly actual and partly estimated, the gross revenue will be approximately 950 million dollars, or almost a billion dollars which is about one-sixteenth of the gross revenue of our railways during the past year. The total mileage of the U. S. S. R. is also approximately one-sixteenth of the mileage of our railways.

Piece-Work in Shops

In the course of my trip I had an opportunity of visiting several of the principal railway shops and was favorably impressed with the energy and resourcefulness of their managers and their output, bearing in mind, of course, the lack of modern tools, equipment and facilities of the up-to-date railway shops in this country. I was particularly interested to observe and to learn that all of the shop employees are on a piece-work basis. Their piece-work system is carried to a far greater extent than with us. Not only the men operating machines and whose compensation is based on the output they obtain, but the man or men who are working as helpers tending one or a group of machines receive a proportionate increase over and above their minimum fixed compensation; this bonus is equal to that earned by the machine operatives in that particular gang or group. This system tends to excellent teamwork among all of the employees in the shop and serves as a stimulus for increased output; it also results in a better utilization of plant and a lowering in the unit cost of production.

During these visits to various railway and industrial plants, I observed that the men were properly clad, well fed and appeared to be happier and more contended than I have known them to be during my visits to Russia before the World War. This is doubtless due to the fact that the treatment they are accorded by the management is more humane and more considerate than has been the case in the past. As a rule every railway shop, as well as every industrial plant employing several hundred or several thousand men, provides a clubhouse for its workers. This may be a part of the plant set aside for that purpose, a special dining room or a

special club building. In this clubhouse, specially built or improvised, are a number of rooms for lectures to the workers on the subjects concerned with their work, as well as on political questions.

Political education of the masses of the people in self-government is most desirable; to no people that have lived for centuries under an absolute autocracy should be entrusted the free secret ballot without easy stages and gradual preparation for the proper exercise of such important civic function. In the specially built clubhouse there is invariably a theatre where moving pictures and plays are staged for the employees.

Workers Club Houses

At the repair shops at Izum I visited a very attractive clubhouse recently completed. There were about 1800 workmen employed in these shops, which are located in a small village and the clubhouse was an attractive building erected at a cost of $175,000. The funds were supplied by the labor union. It contained a theater, class rooms, gymnasium, and rooms occupied by editors who were publishing what is known throughout Russia as a "Wall Paper"; that is, a typewritten or mimeographed paper edited by the workmen and pinned on the walls in the various shops or lunch rooms.

Since the hours of labor have been reduced from 10 and 12 hours a day, formerly general throughout the country, to 8 and in some cases 7 hours, the workmen and their families have several hours of leisure to spend in these clubhouses where they assemble for their amusements, or for discussion of topics of interest, or for attendance at lectures in connection with their daily tasks.

In other plants I visited I saw large central dining rooms where the workmen could obtain a wholesome meal for 25 or 40 kopeks, which corresponds to 25 or 40 cents in the United States. While such institutions and workmen's clubhouses are common throughout our country and do not attract particular attention, they are an innovation in Russia and exercise a more beneficent and cultural influence upon the working population than they do in the United States.

I do not wish to convey the idea that the Russian railways, Russian railway equipment, or conditions under which the Russian workmen live and work are perfect or are on a par with those obtaining in the United States. Far from it, they are backward in practically all of the items I have tried to enumerate, but they show appreciable and remarkable progress and changes for the better as compared with the conditions that obtained in 1920-21, as well as with the conditions that obtained before the World War. Nor does the efficiency of the individual worker, as well as of the shop, compare favorably with that of our own workers and our own shops, but, of these facts they are fully cognizant and they are trying their utmost to improve and to benefit by what they can learn from the more industrially advanced countries of the world and particularly from us.

Attitude Toward United States

I happened to visit some of the shops during the lunch hour and was interested to observe that in places where there were no special dining rooms, a portion of the shop was set aside where there were long tables and benches alongside of which the workmen had their lunch either brought in from the main dining room or which they brought with them from their homes. A loud speaker broadcasts through the luncheon hour either music or some form of entertainment or possibly, as occasion may present itself, a speech of a more serious character. When they were told that I was a visitor from the United States they expressed great interest in learning of the labor conditions obtaining here and showed by their questions and expression a spirit of friendship. Anyone going over to Russia who will bear in mind what Russia was before the War, what it has suffered during the World War and the civil war that followed, will not be disappointed with what he will see. On the other hand if he attempts to measure everything he sees with the American yardstick he will probably be disappointed and find much to criticise.

The Railway Administration is desirous of adopting our standards of operation and equipment and following so far as possible our type of organization. For this reason it is sending to the United States in increasing numbers young engineers to observe how we handle our railways and our repair shops as well as the organization of our industries. At the same time Russia is employing an increasing number of American engineers and experts to help them to reorganize their industries and means of transportation along modern lines. Inasmuch as that country always has been industrially undeveloped they have very little to destroy in order to build the most modern plant possible at the moment.

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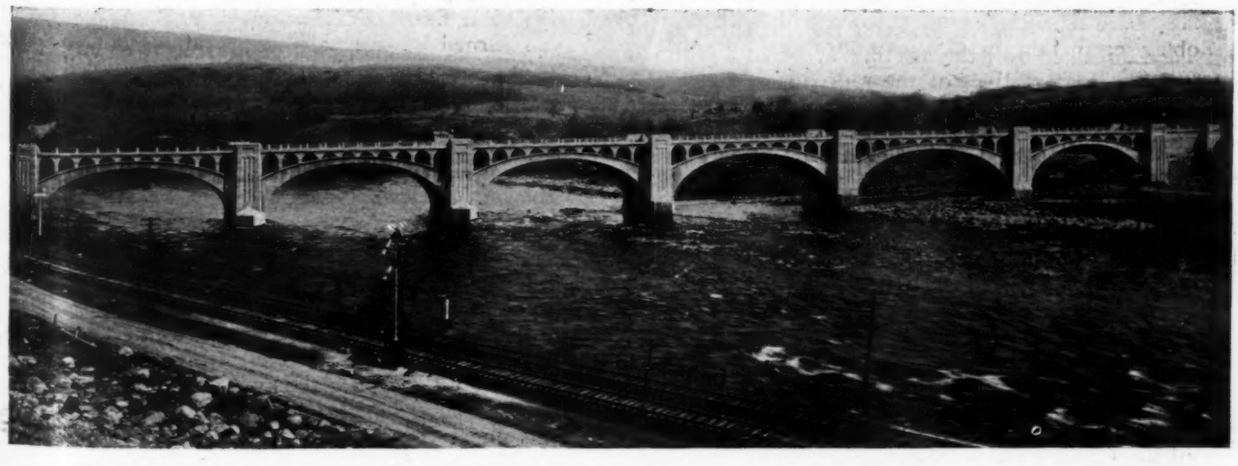

A View of the Lackawanna Main Line at Slateford Junction, Pa., Showing Old Main Line in the Foreground

Over 500 Persons Attended the Meeting

Loss And Damage Less Than for any Year Since 1917

Freight claim agents discuss possibility of further reductions at annual meeting at Washington

DESPITE an increase in the volume of traffic handled, freight claims paid in 1928 by the railroads of the United States and Canada were less than for any year since 1917, according to the report of the Freight Claim Prevention committee of the Freight Claim Division of the American Railway Association at the Division's thirty-eighth annual session at Washington on May 21-24. H. T. Lively, general claim agent of the Louisville & Nashville and chairman of the division, presided over the meeting, at which a group of over 500 representatives of the railroads and members of their families from Canada, Mexico and the United States were in attendance. Besides this wide representation, a large number of prominent speakers and an enthusiastic interest in the subjects under discussion characterized the convention.

Interest was particularly active when an attempt was made to change a rule so that the cost of recoopering damaged shipments of fresh fruits, melons and vegetables would be prorated among all carriers participating in the handling of the product. Whereas under the present rule the destination carrier bears the cost although the damage may have occurred on an originating or an intermediate line. As a two-third's affirmative vote is required to change a rule the attempt failed.

Officers elected for the ensuing year were: Chairman, J. D. Shields, freight claim agent of the Chicago, Burlington & Quincy at Chicago; first vice chairman, A. R. McNitt, freight claim agent of the Union Pacific at Omaha, Neb.; and second vice chairman, H. J. Freeman, freight claim agent of the Pennsylvania at Philadelphia. The terms of four members of the General committee expired at this session and those elected to fill the vacancies included J. W. King, freight claim agent of the Chesapeake & Ohio; T. C. Smith, freight claim agent of the Central of New Jersey; W. E. Fitzpatrick, freight claim agent of the Los Angeles & Salt Lake; and E. Arnold, auditor of freight claims of the Canadian National.

Seattle, Wash. was chosen as the place for the next meeting and the date was left to the decision of the General committee. The by-laws provide that the meeting shall be held in June.

Report of Committee on Freight Claim Prevention

It is gratifying to record that freight loss and damage again shows a decrease of $2,155,816, the amount for 1928 being $36,557,243 as compared with $38,713,059 in 1927. The number of claims presented and the amount carried in suspense show a decrease and the number of claims under investigation at the end of the year was normal, as compared with previous years. The entire record reflects a very healthy and satisfactory situation. The number of claims presented during 1928 totaled

2,475,618, as compared with 2,527,055 in 1927, a decrease of 51,437. The number of claims under investigation at the end of the year was 205,439 in 1928 and 205,270 in 1927. The amount in the suspense account at the end of the year was $2,150,965 compared with $2,802,391 in 1927 or a reduction of $651,426.

In annual reports of the committee for the years 1926 and 1927 attention was directed to the continued increase in charges to "Unlocated Damage" and "Rough Handling," the two items having increased to the extent of $2,253,825 in the two-year period. For the first time in three years, the combined total of these two causes now shows a decrease. From other noticeable changes in the statistical structure, there is every reason to believe that this reduction will continue.

Carload Damage

Unlocated damage and rough handling, of which carload freight represents 81 per cent, shows a reduction of 5 per cent, which is the first reduction since 1925. Joint terminal rough handling committees are now functioning in 35 cities, principally in the southeast, the southwest and the centralwest. In the southeast a general committee of operating and mechanical officers has been organized covering practically the entire territory. In the routine handling of closed cars in switching and terminal operation, very little practical material has developed upon which to base committee discussion and action. This has resulted in one notable hindrance to the full success of joint terminal committee activity.

Fresh Fruits, Melons and Vegetables

As illustrative of the excellent service being rendered by carriers, it is noted that the percentage decrease in the items of delay and temperature failures exceeds the percentage decrease for loss and damage on all commodities. We are confronted with the facts that fruits, melons and vegetables represent less than 2 per cent of all tonnage, and less than 2 per cent of all cars loaded, but equal 26 per cent of the loss and damage total.

The committee and the special representatives have devoted a large part of their time and energy in getting clearly before the individual lines the causes for present conditions. Special meetings have been held in the several territories. There is general agreement that the "Broken Package" phase of the problem is responsible for the abnormal conditions. Territorial representatives concur in the judgment of the committee that the larger part of the trouble exists at destination points and is due to three causes: (a) Failure to recooper broken packages before delivery. (b) Failure to supervise the disposition of salvage, to prevent sale at a sacrifice. (c) Failure to supervise notations on freight bills, thus permitting adjustments on the basis of indefinite records.

Efforts have been made through every known channel available to this committee, to impress upon destination line representatives the necessity for the adoption of the following program:

1. Determine, at the time of unloading, the extent and the cause of damage.
2. Recooper and place in the best possible condition all damaged packages before delivery.
3. Salvage, to best advantage, packages that cannot be reconditioned and placed in good line or cannot be delivered without bad order notation. Encourage car door or follow-up agreements as to the extent and the amount of the damage.
4. Bad order notations on delivery documents to specifically cover damage to commodity and not merely damage to container.

Realizing that the efforts of the committee had not proven effective, the matter was presented to the general committee of this division with the request that an appeal be made to the railway executives, through the president of the association, for support in having the necessary program put into effect. The matter is being handled by the general committee along the desired lines.

Clay Sewer Pipe and Drain Tile

The total loss and damage of clay sewer pipe and drain tile was $727,299, a reduction of $137,630, or 16 per cent. The efficient inspection by bureau inspectors at manufacturing plants and the increased inspection and intelligent analyzing of causes by bureau and prevention department representatives at destinations, to-

gether with a marked willingness on the part of many shippers to load their shipments more carefully, were factors in this improvement. Closer attention should be given to the selection of equipment. The use of cars with good floors and steel underframes has shown excellent results. To reduce the breakage caused by the vertical movement of pipe due to switching impacts, experiments suggest the possibility of steel strapping or the unit-load system. Further tests should determine definitely whether this idea is commercially practicable.

Egg Breakage

Egg loss and damage totalled $442,988. For the second successive year there has been a reduction of approximately $100,000 in claims paid for damage to eggs. During the year a most thorough study of the protection afforded by the various methods of packing was made by the Western and the Trunk Line freight inspection bureaus. This study, which embraced 21,828 carloads, equal to 40 per cent of the total number of cars originated, disclosed that about three-fourths of all the damage occurred in one-fourth of the number of cars shipped and these were not well-packed. It also showed that shippers of at least 20 per cent of all cars improperly packed in 1927 changed to a safe method in 1928, and there is good reason to believe substantial further improvement will come this year.

Freight Claim Conferences

In all previous reports the committee has expressed appreciation for the valuable work done by the territorial freight claim conferences. They are the open forums for the free discussion of all matters pertaining to prevention work. Such discussions result in definite action and ultimate accomplishment of desired results.

Your committee, after studying a means for co-ordinating and facilitating action upon subjects before the conferences without interfering with their operations, submitted suggestions to them embodying the following features: 1—An enlarged and definite program of prevention work in each conference. 2—The activities of all prevention agencies to be more closely united. 3—Duplication of effort to be reduced to a minimum.

It was further suggested as the first step, and as one way of facilitating territorial co-operation, that the conferences authorize the chairmen of their respective prevention and perishable committees to deal informally, between meetings, directly with the chairmen of like committees of other conferences, as well as with this committee, so that matters under investigation might be rounded out without delay and particular problems (such as those incident to fresh fruit, melon and vegetable damage) be given continuous attention, thus securing the maximum of beneficial results. All of the conferences have agreed to the plan outlined and your committee feels reasonably sure that future results will demonstrate the wisdom of this change.

Recoopering at Chicago Saves Roads $741,000

Following the report of the Committee on Freight Claim Prevention, the outstanding prevention activities of freight claim conferences during 1928 were described. P. C. Archer, freight claim agent of the Chicago & Alton, described how the Chicago Claim Conference, last year, saved the railroads $741,000 through the reconditioning and recoopering of packages of fresh fruits, melons and vegetables. The Conference program, in connection with this activity, is handled through a special committee representing the principal fruit handling lines. The committee, being vested by the Conference with full authority to employ the necessary facilities for doing the work, deals direct with the receivers of fruits, vegetables and melons, or their representatives, such as the Auction Company, and polices the work. There are two principal receiving terminals in Chicago, aside from the team tracks of the individual lines, and over these two principal terminals, served by all lines, the Conference committee takes jurisdiction.

At the Fruit Auction house from 200 to 300 cars per week are received and at this auction house a staff of coopers, supervised by a foreman, is maintained and every broken package unloaded, which can be repacked or recoopered and placed in first class condition, is so handled and disposed of by the Auction Company without loss. Where the fruit is actually damaged or a portion is missing and the package cannot be sold at auction, it is recoopered and turned over to a responsible salvage concern to be sold for the carriers account.

To indicate the extent of this work, it is only necessary to say that during 1928, there were 13,418 cars of fruit unloaded at this Auction from which a total of 257,589 broken packages were unloaded. Of this number 236,276 or 91.7 per cent were recoopered and sold without loss and 12,985 packages were turned over to the salvage company. The cost of material and labor, in connection with this work amounted to $34,544, but the saving to the railroad through this work, estimated on the basis of $2 per package for those that were recoopered and sold without loss and 50 cents for those that were recoopered for salvage, after deducting the expense of the operation, amounted to $444,500.

The South Water Market Terminal is a team track delivery facility, serving all lines and is under the jurisdiction of a joint agent. From it 7,887 carloads of fruit, vegetables and melons were unloaded during 1928. A recoopering force is maintained at this point and out of a total of 144,797 broken packages unloaded, there were 129,753 or 89.6 per cent recoopered and delivered to the consignees without exception while 12,361 packages were recoopered for sale by the joint salvage agent. The cost of this work, both labor and material, amounted to $18,202, but the saving to the carriers, based on the above estimate of $2 and 50 cents respectively per package, less the cost of recoopering, was $192,607.

In addition to furnishing this recoopering service in the two principal receiving terminals spoken of, this same service is extended to all cold storage houses in the Chicago terminal district. There were 8,383 cars of fruits and vegetables unloaded at cold storage houses in 1928, with 91,209 broken packages recorded. Of these 71,462 or 78.3 per cent were recoopered and placed in storage without exceptions and 18,102 were recoopered and delivered to the salvage agent. The expense entailed at cold storage houses amounted to $12,142, and, using the same estimate of saving, the carriers profited to the extent of $104,102 after allowing for the labor and material.

This entire recoopering program at the Auction, the South Water Market Terminal and the cold storage plants resulted, in accordance with the very conservative estimate indicated above, in a saving to the lines interested in the haul of this traffic of at least $741,000. The unfortunate part of this great work, however, is that the entire burden of this expense has fallen on the shoulders of the delivering lines, whereas the long haul carriers, which originate this business and enjoy the greater part of the revenue accruing from it, have steadfastly re-

fused to join in or assume their proper share of the expense necessary to bring about this tremendous saving.

Other Claim Conferences

J. W. King told how the Virginia Claim Conference has given special attention to the prevention of over and undercharge claims and corrections. An active educational campaign has been conducted on individual lines under a definite program which provides for (1) informing and educating the shipper as to the packing and marking requirements, (2) posting receiving clerks as to packing and description requirements, (3) educating and training rate and billing clerks, (4) training unloading and check clerks in comparing waybills with the freight and to correct erroneous weights and descriptions on waybills, (5) trained and qualified revising clerks at destination, (6) prompt and thorough revision by competent revisers in local or general offices and (7) a definite plan for promptly and currently reporting errors to agents and employees at fault.

C. L. Jellinghaus, superintendent of property protection of the New York Central, described a study of the loading of machinery made by the Eastern Claim Conference and projected motion pictures of tests of the use of skids and the practice of "snubbing." He stated that the major portion of the damage to machinery is due to a failure on the part of shippers and carriers to recognize and apply a few fundamental principles of good bracing and loading practices which have been developed and have been available for some time.

In discussing the Mechanical Division rule that provides that diagonals of 2-in. by 4-in. timbers for light machinery and 4-in. by 4-in. timbers for heavy machinery should extend from the floor to the heavy portion of the machine, Mr. Jellinghaus said that under car impact, the lower portion of the machine will rise, since the skids are not secured to the car floor. This upward and forward movement will break the diagonals if the car impact is sufficiently heavy and some means should be developed to retard this movement but not prevent it. He recommended the "snubbing" idea.

Another paragraph of the loading rule which he thought needs further study is the one covering the securing of the top of a machine with two horizontal beams running across the car at each end when the diagonals cannot be efficiently employed. These beams must be not less than 2 in. by 6 in. and when affixed to the car walls, the 6-in. face must be horizontal.

When a machine is crated, the most important feature is again the reinforcement at the heavier portion to protect against lengthwise thrusts, as without it the entire strain is transmitted to some particular part, usually the legs. End braces against this heavy portion at or above the center of gravity, strengthened by diagonals, either by means of lumber or tie-rods running from the skid to the upper part of the crate or attached to the end braces, will relieve this strain. Two such diagonals should be on each lengthwise side of the machine. When protected in this manner, the upper and lower parts of the machine move forward as a unit under car impact.

Two other important features may be mentioned: First, advance advice of any unusual movement so that the necessary study may be made of crating, bracing and blocking. Second, it is most important that cars with steel underframes, good sound floors and friction draft gears be furnished.

R. A. Podleck, chief of the loss and damage department of the Atchison, Topeka & Santa Fe at Los Angeles, Cal., told how the Pacific Coast Claim Conference has been concentrating on shipments of fresh fruits, vegetables and melons. A test train was run in September, 1928 to see what difference in temperature would be developed when loading crosswise as compared with lengthwise, it being claimed that lengthwise loading produced better refrigeration. The result was an average of 41.8 deg. for grapes loaded crosswise and 40 deg. for those loaded lengthwise. It was also found that there is more breakage in those loaded lengthwise.

The Pacific Coast Claim Conference Prevention Committee, during the latter part of 1928, started a statement showing the average claim per car on all cars of citrus fruits, lettuce and tomatoes delivered at 66 of the important consuming markets in the United States during 1927. It shows that 80 per cent of the claim payments occurred with an average claim rate per car of $14.49 at 28 markets where over 51 per cent of the cars were delivered, compared with an average claim rate of but $3.79 per car at the other 38 markets where 40 per cent of the cars were delivered, with only 20 per cent of the claim payments. It is estimated that a saving of five million dollars per annum could be effected if the same average could be obtained at the 28 markets as apply at the others.

H. R. Grochau assistant freight claim agent of the Chicago, St. Paul, Minneapolis & Omaha, described some interesting results obtained by the Northwestern Claim Conference in its study of damage to carload shipments, which study was made from two angles—the relation of the carriers to the problem—the relation of the shippers to the problem. In order to educate shippers in prevention work, various organizations in St. Paul were enlisted, with the result that the Joint Freight Claim Prevention Committee, sponsored by the St. Paul Association of Commerce, the Freight Agents Association and the Northwestern Claim Conference was organized. It is composed of 6 shippers, 3 local agents and 3 freight claim agents. Meetings are held every 60 days.

At one of these meetings one of the shippers' representatives stated that he had, in his capacity as purchasing agent, called shippers attention to the improper loading and had informed them that the damage resulted from this improper loading and refused to enter a claim against the carrier. He has now had printed a notice which is attached to all carload orders and which reads:

"Load this order in a car so as to insure lading being intact upon arrival of car at destination under reasonable carrier handling. Claim for damaged lading due to improper loading by shipper will be referred to consignor for adjustment without recourse by us on carrier."

This practice has met with much approval and an effort is being made to interest other purchasing agents.

Secretary of Commerce Lamont Congratulates Division

Hon. R. P. Lamont, Secretary of Commerce of the United States, congratulated the Division on the work it has done. His address, in part, follows:

I notice from the figures that have been handed to me, that this group has been doing what is, to me, a very remarkable work in the reduction of claims. If I had no great confidence in the men who handed me these figures, I should have difficulty in believing that it was possible to have brought about the reduction in losses from claims in the eight years from 1920 to 1928 that appear here. It is an amazing sum, making allowance for the natural growth of the large number of cars that are now being loaded, with respect to those which were loaded eight years ago. As I figure, roughly you are saving ap-

proximately a hundred million dollars a year. That is an enormous amount of money. That is 5 per cent on $2,000,000,000.

The difference between a success and a failure in any enterprise is a matter of a few per cent above or below a certain figure, Those few small figures are made up of a great many very small items, and it is by close attention to those small items and the aggregate of those small items, that makes for the success of any business, railroad or industry. The contribution that you gentlemen have made to the railroads has been a very substantial one.

With the constant pressure for lower rates, and constant increase in wages, it has only been by very great improvement in the operations (and the paring down of expense, and the watching of small economies) that it has been possible for the railroads to exist. I want to congratulate you on the very great achievement which I think you have made in contributing toward the success of the operation of these railroads.

Carelessness Causes Claims

R. H. Aishton, president of the American Railway Association, spoke upon carelessness, in part as follows:

We are today facing 36 million dollars worth of carelessness. And this is only an atom of the total. Look at our enormous annual fire losses due in large part to carelessness. Even though human life may be the price, we do not regard carelessness with much more concern than Mark Twain did the weather. You all remember what he said,—"Everybody talks about the weather, but nobody ever does anything about it." Still you have done something about that part of carelessness that makes for claims.

Since you met a year ago you have cut from the already greatly reduced total the sum of over two million dollars. That two million reduction is five per cent on forty millions of capital invested in the American railways and forty million is more money than almost anyone can comprehend. Don't let anyone tell you that the two million dollar reduction is the result of a combination of fortunate circumstances. It is not. It comes from a "carelessness conscious" public and employees made conscious of carelessness by your work.

Careful handling will eliminate the first and largest item on your classified loss and damage account. Rough handling, last year, was responsible for 28.4 per cent of your entire claim payments and was one of only three items to show an increase. Now what causes rough handling? Isn't the greater part carelessness? Then your problem seems to me to make all employees "Carelessness Conscious" as you have the shipping and receiving public, who, by better packing and marking, have done so much toward claim reduction.

How to do this is your next step. One way would be to visualize this in a homely way, so that railroad men will know exactly what is involved. I have always found that if railroad men know the facts and what they mean, you needn't worry about their responding with the remedy. Your job is to find the successful way of impressing the situation on the individual.

I've been looking over your 1928 summary and it strikes me that about 6 of the 16 classified causes may be chargeable to carelessness and all of them will benefit from a campaign to overcome our national weakness. These items: Rough handling, delay, defective equipment, error of employee, improper handling or loading, and improper refrigeration or ventilation are all theoretically avoidable causes. These six items comprise about one-half of the total claim payments. I have often noticed the enthusiasm that prevails at Freight Claim Division meetings, and I'm now going to match your enthusiasm, take you back to 1921 and urge you to readopt your then new slogan, "Cut Loss And Damage In Half—It Can Be Done."

Cautioned Against Self-Satisfaction

You, as individuals and as an organization, have cause for satisfaction for what you have accomplished, but I want to call attention to the danger of a feeling of self-satisfaction. This is one of the greatest obstacles toward further progress. If you have such a feeling of self-satisfaction, get rid of it, for there is a tremendous amount still to be accomplished. The railroads have overcome great obstacles in the past few years, but the struggle continues. Some of the hurdles ahead of them which have to be met are the development of new forms of competition. We have the question of water transportation, of rubber transportation,—in other words, travel on the highways,—of air transportation, if you please,—all either just in their infancy or just resurrected from a long sleep, as in the case of waterways. Notwithstanding all these things, the railroads must still continue to be the backbone of transportation in this country, and the answer to all these quesions is to take advantage of every means developed through research, adaptation, practical experience and cooperation between yourselves, leading to better and more economical service, more efficient and safer service, and in the end the public, who will decide and determine what form of transportation they use, will go to that form which affords them the greatest satisfaction in those things I have mentioned.

Public Relations Work

Henry C. Palmer, editor and manager of the Traffic World, spoke on the "Value of public relationship in connection with freight claim adjustments as well as freight claim prevention." He said, in part, as follows:

You claim agents, deal only with that class of the public known as shippers. But in your particular field you have opportunities not equalled in any other branch of the service, not only to do good public relations work for the railroads generally, but for your road in particular. Your opportunity is twofold—first, in the settling of claims, and second, in the prevention of claims. In the settlement of claims it ought to be the policy not so much to see that the very best possible settlement, from the point of view of your railroad is made, as to see that the settlement is fair. If necessary, I would say it would be well even to give the claimant a little the best of it, and do it with good grace. That is the policy followed by retail stores, as a rule, one of them that I know of, for instance, being pretty well known by its slogan: "The Customer Is Always Right." I would not go so far as that, but you get what I mean. A satisfied customer, even if it costs a little to keep him satisfied, is better than a lost customer—always provided you do not let him make too much of a goat out of you.

In the work of claim prevention, there is splendid opportunity for public service and the making of friends, as well as reducing losses on your railroads. There is untold benefit from the work of instruction in how to pack and load and stow—benefit not only to your railroad, but to the customer whom you instruct and whose profits you, therefore, increase by preventing losses that make it necessary for him to file claims for compensation. Every time you do a thing like that, you make a friend for your road and for the railroads. Claim prevention is a friend-making process. Its importance cannot be overemphasized. It is more than the routine work of reducing claims—it is public relations work of the most important character.

I know little about the technique of your work, but sometimes the view of the outsider who could not hold your job, but who knows just enough about it to talk with a degree of intelligence concerning it, may be of value. He may see something that the man engrossed in his work fails to see. It is easy to have your eyes so close to your work as to fail to get the proper perspective.

In this case, the wide view is to conduct relations with shippers with interest of your employer at heart, of course, but with the realization that the best interest of your employer, in the long run, is to have the good will of the customer. If you do not have the kind of employer who thinks in those terms, then you are unfortunate and must simply make the best of a bad situation. But I do not think many railroads take the narrow view. Indeed, my chief criticism of railroad executives is that they are too much inclined to "lie down" when a question of their rights is involved and they fear to offend shippers.

Motor Vehicles Should Be Regulated

I have seen this for instance, in the matter of motor vehicle competition. The buses, which ought to be regulated, and for the regulation of which the railroads should have fought, with faith that the public would eventually see the right, have succeeded in taking much of their passenger business from them. The same thing is true, to a lesser extent, of the trucks. The railroads now, to be sure, are solving this problem, in a way, by going into motor passenger transportation themselves—which may account for or justify now—though not for the past—their present policy of not insisting that their motor vehicle competitors be subject to the same kind of regulation and restrictions that control them.

I have seen it also with respect to the growing policy of inland waterway development, especially on the Mississippi river. Here the government puts in operation a fleet of barges owned

by the government itself, on a waterway developed and maintained by public taxation, and at rates arbitrarily lower than the rail rates, though no study of actual comparative costs of the two methods of transportation has been made. It even insists that it is making a profit in this enterprise, though it charges no overhead and its profits are much the same as your savings would be if you had to pay no rent, nothing for food, and nothing for clothes. Furthermore, the railroads are forced to make divisions of rates with this water competitor. And through all this, most of the railroads fold their hands and look on complacently, sometimes even saying a good word for the barge line, just to show that they are good fellows, but in few cases raising their voices against it for fear that they will be misunderstood, or some shipper will be offended at their efforts to oppose this subsidized scheme, devised for the avowed purpose of giving and defended on the ground that it gives rates lower than rail rates to those who can use it.

I believe the barge line is fastened on us now forever, and I believe it is pretty largely the fault of the railroads that this is true. How could they expect their battles to be fought successfully when they themselves took no part in it?

Other Speakers

Mr. Lively, chairman of the Section enumerated the outstanding achievements of the Division for the year, emphasizing preventive work, the service rendered to the patrons of the carriers through the prompt adjustment of claims, and interline settlement between carriers. At the close of the year, the amount in suspense showed a reduction of 23.2 per cent, compared with the close of 1927.

In discussing the opportunities for further reductions in the loss and damage account, he recommended that loss and damage to a few commodities transported in carload quantities be brought under control. Another suggestion was the development of specialists, and the adoption of modern and efficient methods.

Edward Dahill, chief engineer of the Freight Container Bureau of the American Railway Association, discussed several phases of claim work and emphasized the fact that if the money spent for recoopering at destination be expended at origin it will keep working for some time and will benefit several shipments rather than a single one. In his consideration of the elimination of the round bottom bushel basket, he said that in 1926 a total of 42,577,000 bushel baskets were used and of these 83.2 per cent were round bottomed and 16.8 per cent were straight sided while in 1928 the latter ratio had increased to 43.8 per cent.

M. J. Gormley, chairman of the Car Service Division of the American Railway Association, outlined the work of that Division, describing in detail the campaign for heavier loading and the efforts being made to eliminate obsolete equipment. If one ton more be loaded in each car, he said, the net earnings of the railroads would be increased $100,000,000 a year. The campaign for heavier loading was accompanied by the motion that the larger load would result in greater damage, but investigation has proved that this is incorrect. As proof of the increased efficiency of the railroads and better cooperation with the shippers, he said that in 1932 the railroads will be doing business with 175,000 less cars than they had at the high point of ownership in 1925.

J. H. Butler Describes Air Express

J. H. Butler, general manager of the department of public relations of the Railway Express Agency, Inc., described the air express business of that company. This business started on September 1, 1927 on four lines and was operated in conjunction with rail service. It is now out of the experimental stage and is being operated on 14 lines aggregating over 10,000 miles. Shipments of all classes except livestock and inflammables are accepted. The weight limit is 200 lb. per piece and the value limit, $5,000.

The shipments are not governed by any special packing rules and the risk of loss or damage is slight—the loss not covered by insurance being only $185 in 16 months. If the plane fails the shipments are transferred to fast trains and the charges are adjusted if slow time is made.

The cargo capacity of the planes at first was 750 lb. but this has increased to 1,500 lb. The speed is around 100 miles per hour although recently a trip was made from Chicago to Cleveland at 190.8 miles per hour.

W. P. Bartels, of the Bureau of Service of the Interstate Commerce Commission, gave a brief outline of the activities of that bureau. The scope of the Bureau of Service, he said, extends generally over the field of railway operation and transportation and many related matters, not specifically coming under the section of car service, the section of efficiency and economy of carriers operation or the section governing the transportation of explosives and the dangerous articles, find their way to this bureau. The contacts in the field are made by 15 service agents, who are located at important railroad centers throughout the United States.

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Westbound Pennsylvania Passenger Train in the Blue Ridge Mountains

Van Sweringen Organization Executive Changes

J. J. Bernet becomes president and W. J. Harahan senior vice-president of C. & O., Hocking Valley and Pere Marquette—Denney heads Erie

JOHN J. BERNET, president of the Erie since January 1, 1927, resigned on May 24 to become president of the Chesapeake & Ohio, the Hocking Valley and Pere Marquette and thus ranking executive of the Van Sweringen railway organization. William J. Harahan, president of the Chesapeake & Ohio and the Hocking Valley will remain with these roads as senior vice-president while also serving in a like capacity on the Pere Marquette. Charles E. Denney, vice-president of the Erie in charge of operation, has been elected to succeed Mr. Bernet in the presidency of that road and will be succeeded in the vice-presidency by Robert E. Woodruff, assistant vice-president.

The first announcement of the foregoing executive changes in the Van Sweringen organization came on May 23 when Mr. Bernet applied to the Interstate Commerce Commission for authority to serve as president and director of the C. & O., Hocking Valley and Pere Marquette and other roads affiliated with the C. & O., stating that he expected to be elected to those positions on the following day and that he would relinquish the Erie presidency at the same time. In this application authority was also asked for Mr. Harahan to serve as senior vice-president of the same properties and for H. H. Fitzpatrick, C. & O. vice-president and general counsel and Otto Miller, Frank H. Ginn and Alva Bradley, C. & O. directors, to hold similar positions on the Pere Marquette. The commission granted the applications in orders issued on May 25.

Blank-Stoller

John J. Bernet

In his new position as president of the C. & O., Mr. Bernet will be executive head of the central property in the new trunk line plan of the Van Sweringens. The Van Sweringen brothers of Cleveland obtained their start in the steam railroad business in July, 1916, when they acquired the New York, Chicago & St. Louis from the New York Central. They selected as the man to manage this property, John J. Bernet, at that time resident vice-president of the New York Central and the Michigan Central at Chicago. Mr. Bernet had spent all his railroad career up to that time on the Lake Shore & Michigan Southern which was absorbed into the New York Central on January 1, 1913. He had advanced in the familiar line of promotion from operator through the positions of dispatcher, trainmaster, superintendent, etc.

Under his skilful direction the Nickel Plate soon became a consistent earner and regular dividend payer. Rehabilitation was delayed slightly by the advent of federal control, but after the railroads were returned to their owners the Nickel Plate began to attract the attention of shippers by its expeditious service and skilful solicitation of business. It was one of the first roads in the New York-Chicago territory to restore its operating efficiency to pre-war standards of performance.

This increasing prosperity soon enabled the Nickel Plate to advance to even larger things. In March, 1922, it acquired the Toledo, St. Louis & Western; then in April, 1922, the Lake Erie & Eastern; and in August, 1924, it announced its plans for the acquisition of the Erie, the Pere Marquette, the Chesapeake & Ohio and the Hocking Valley and the establishment of the greater Nickel Plate system. This plan of consolidation was subsequently rejected by the Interstate Commerce Commission, but a later plan for a Van Sweringen system, built around the C. & O., was filed on February 20, 1929, and now awaits the decision of the commission. The commission recently approved a previously rejected financial plan for the acquisition by the C. & O. of Pere Marquette stock, having already approved the affiliation of the two roads at the time when the now acceptable financial plan was rejected. The important point in this connection from the standpoint of Mr. Bernet is the opinion held by many observers that the ambitious plans of the Van Sweringens were made possible by the prosperity secured for the original Nickel Plate through the operating skill of its president.

Coming to the Erie on January 1, 1927, Mr. Bernet, during the two years of his term as president, has achieved there similar success to that which marked his outstanding performance on the Nickel Plate. He immediately set about the task of rehabilitating the Erie power and during 1927 the road retired 367 old locomotives and purchased 50 new freight and 30 switching locomotives. The results were apparent in the following year when, for the first six months of 1928 the average

cars per train increased 13.4 per cent over the first six months of 1927, gross tons per train increased 10 per cent, train speed 6.1 per cent and gross ton-miles per train-hour 17.4 per cent.

Recently published statistics for March of the current year indicate still further achievements along these lines. With an actual decrease of 17,381 train-miles and 33,727 locomotive-miles, as compared with March, 1928, the Erie, during the corresponding month of the current year, performed 148,839,000 more gross ton-miles which yielded 49,442,000 more net ton-miles than were produced in March, 1928. Comparison of other factors for the same month of the two years reveals that gross tons per train rose from 2,452 in March, 1928, to 2,661 during March, 1929; gross ton-miles per train-hour increased from 29,919 to 33,958; car-miles per car-day from 38.8 to 42.2; net ton-miles per car day from 604 to 645 and pounds of coal per 1,000 gross ton-miles decreased from 128 to 117.

John J. Bernet was born on February 9, 1868, at Brant, Erie county, N. Y., and received his education in the public schools at Buffalo, N. Y. He first entered railway service in 1889 as a telegraph operator on the Lake Shore & Michigan Southern and on March 12, 1895, was promoted to train dispatcher. He remained in this position until April 2, 1921, when he became trainmaster on the Eastern division. From the latter post he was first promoted to assistant superintendent of the same division and then became superintendent on February 1, 1905. He again was promoted to be assistant general superintendent at Cleveland, O., in November of the same year and to the general superintendency on October 1, 1906.

Mr. Bernet left the Lake Shore on January 1, 1911, to become assistant to the vice-president of the New York Central Lines west of Buffalo, with headquarters at Chicago, and on April 15, 1912, his title was changed to assistant vice-president. When the New York Central & Hudson River and Lake Shore & Michigan Southern were consolidated into the New York Central on January 1, 1915, he was chosen resident vice-president at Chicago for the New York Central, acting as general representative for the company in that territory and retaining also the vice-presidency of the Michigan Central.

On July 15, 1916, Mr. Bernet was elected president and general manager of the New York, Chicago & St. Louis and served as its federal manager from October 28, 1918, to March 1, 1920. On the latter date he again assumed the title of president and continued as head of the Nickel Plate until he became president of the Erie on January 1, 1927.

William J. Harahan, who becomes senior vice-president of the properties headed by Mr. Bernet, has been president of the Chesapeake & Ohio since December 7, 1920, when he succeeded the late George W. Stevens. He is a railroad executive of wide experience, having had training in both the operating and engineering departments. Prior to his coming to the C. & O., Mr. Harahan held important executive positions on three large railway systems. He was at one time fourth vice-president and general manager of the Illinois Central and later vice-president of the Erie in charge of engineering. He was elected president of the Seaboard Air Line in September, 1912, and during the period of federal control was continued as federal manager of the property.

William J. Harahan

Blank-Stoller

Charles E. Denney

During his term as president of the C. & O. Mr. Harahan has seen its gross revenues rise nearly 50 per cent in the short space of six years, or from a 1920 figure of $90,524,185 to a 1926 peak of $133,974,031. The 1927 gross revenues were $133,042,174, but there was a recession in 1928 when the figure fell to $124,825,172. Likewise net income rose from a 1920 figure of $3,812,906 to $28,607,315 in 1927 and $28,916,925 in 1928 this latter, an increase of $309,610 over the previous year, being realized despite the $8,217,000 drop in gross revenues.

Between 1920 and 1928 the revenue tons carried rose from 40,838,116 to 71,023,263 in 1927 and 65,935,659 in 1928. Net ton-miles rose from a 1920 figure of 11,720,030,889 to 18,186,579,973 in 1928, while freight train mileage rose only from 10,359,986 to 13,207,472 because

the net tons per train had increased from 1,197 to 1,433. In 1920 the revenue tons carried per mile of road averaged 16,211, whereas in 1928 this traffic density had increased to the point where 24,210 revenue tons were carried per mile of road. The bulk of this increased business is bituminous coal traffic which accounted for 53,489,955 tons of the 65,935,659 handled in 1928 or 81.12 per cent of the total. In 1920 this bituminous coal traffic amounted to 28,625,615 tons, or 70.09 per cent of the total.

The favorable position to which the C. & O. has come under Mr. Harahan's direction is further emphasized in the March, 1929, operating statistics of large steam railways, recently published. Its performance of 33,775 gross ton-miles per train-hour during March, 1929, was exceeded by only three railroads—one of which, incidentally, was the Erie, which, as was stated in the foregoing, made the remarkable showing of increasing its gross ton-miles per train-hour performance from 29,919 in March, 1928, to 33,958 in the corresponding month of the current year. Only two railroads reported heavier train loads than the C. & O. during March.

William J. Harahan was born December 22, 1867, at Nashville, Tenn., and first entered railway service in 1881 as a messenger and clerk in the superintendent's office of the Louisville & Nashville at New Orleans, La. In 1884 he entered the Louisville & Nashville shops as apprentice and in 1886 he was transferred to the engineering department. For two years, beginning in 1889, he was engineer of maintenance of way on the Cincinnati division of the Chesapeake & Ohio. In 1890 he was placed in charge of structures on the Baltimore & Ohio Southwestern and two years later became roadmaster and trainmaster of the Pontiac division of the Illinois Central. In April, 1895, he was appointed assistant superintendent of the Freeport division and in October of the same year was advanced to superintendent. In 1896 he became superintendent of the Louisville division and in May, 1901, was appointed chief engineer of the Illinois Central.

A little over a year later Mr. Harahan was appointed assistant general manager, in 1904 general manager and in 1905 fourth vice-president and general manager. During the first half of 1907 he was vice-president in charge of traffic and engineering and in July of that year he became assistant to the president of the Erie. In January, 1911, he was elected vice-president of the Erie in charge of engineering and on September 26, 1912, he was chosen president of the Seaboard Air Line. From July, 1918, to March 1, 1920, he was federal manager of that property and from April to December, 1920, when he became the C. & O. president, he was a member of the Railway Board of Adjustment No. 1, Division of Labor, United States Railroad Administration.

Charles E. Denney, who succeeds Mr. Bernet as president of the Erie, was born in Washington, D. C., October 18, 1879, and received his education at the Pennsylvania State College. After six years' service with the Union Switch & Signal Company, he entered railway service on May 16, 1905, as assistant signal engineer on the Lake Shore & Michigan Southern (now a part of the New York Central) and from May, 1906, to September, 1913, he was signal engineer, his jurisdiction being extended on May 16, 1912, to include the Lake Erie & Western. From 1913 until August, 1914, he was special engineer to the vice-president of the New York Central Lines with headquarters at Chicago. At the latter time he was appointed assistant general sales manager of the Union Switch & Signal Company and prior to November, 1916, was successively assistant general manager, and assistant to the president of this concern. On the latter date he was appointed assistant to Mr. Bernet, then president of the Nickel Plate. Mr. Denney subsequently became assistant general manager, assistant federal manager and on March 1, 1920, was elected vice-president and general manager. In November, 1927, he became vice-president of the Erie in charge of operation, which position he retained until his elevation to the presidency.

Thus Mr. Denney was a close associate of Mr. Bernet during the time when the latter was directing the upbuilding of the Nickel Plate and, more recently, the rehabilitation of the Erie. He has therefore been closely identified with these achievements of his predecessor and now becomes executive head of the road in the recent outstanding performances of which he had no small part.

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On the D. & R. G. W. at Colorado Springs, Colo.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Fuel and Power in Canada with Special Reference to the Factors Affecting American Coal, by John R. Bradley. "Costs and prices of coal" p.5. "Consumption by railways" p.6. "Imports . . ."p.11. Trade Information Bulletin no. 622 of U. S. Bur. of Foreign and Domestic Commerce. 20 p. Pub. by U. S. Govt. Print. Off., Washington, D. C. 10 cents.

Present-Day Labor Relations, by Paul F. Gemmill. Employee representation and union-management co-operation are among the topics discussed at length. 312 p. Pub. by John Wiley & Sons, Inc., New York City, $3.00

Shipways to the Sea— A Résumé of the Problem Presented by Our Inland and Coastal Waterways, by Ernest S. Clowes. Takes up "Discovery", "Growth, Decay and Revival", The Mississippi System", "Floods", "The Great Lakes", "The St. Lawrence Waterway" "Barge Canal Outlets from the Lakes", "Atlantic Coastal Waterways", "Dreams and Visions", "West of the Rockies" and "Will It Pay?" 196 p. Pub. by Williams & Wilkins Co., Baltimore, Md., $4.50.

Zugbildungskosten, Zugförderkosten und Ihre Wechselbeziehungen, by G. Capelle, A. Baumann and R. Feindler. Discusses the cost of making up trains, the cost of train movement and their changing relations to each other. 142 p Pub. by Guido Hackebeil, Berlin, Germany. 3 Reichsmarks.

Periodical Articles

The Controlling Factor in Industrial Growth and Movement is Men, by Clarence H. Howard. "Before the locomotive builder can have his casting, the draftsman must draw and the chipper must chip. The important thing is the working fellowship which keeps them in the right relation to each other . . ." p. 26. Executives Magazine, May 1929, p. 25-26.

The Froelich Hydraulic Wagon Brake at March Concentration Yard, by H. N. Gresley. Considers reasons for installation, metnod of working, layout of yard, and describes brake in some detail. Discussion, p. 346-350 brings out additional points. Journal of the Institute of Transport, May 1929, p. 339-345.

Recent Events Suggest New Rail Activity, by Pierce H. Fulton. "Faith in future business" p. 115, 166. Magazine of Wall Street, May 18, 1929, p. 114-115, 166, 168.

The Southern Railway Security Company—An Early Instance of the Holding Company, by C. K. Brown. "The Southern Railway Security Company was a Pennsylvania corporation which purchased and held securities of a large number of Southern railroads in the decade of the 1870's." p. 158. North Carolina Historical Review, April 1929, p. 158-170.

Spray Painting Practices and Hazards. "The present report is the result of an investigation made by the Bureau of Labor Statistics in 71 manufacturing and mercantile establishments and 8 Government posts to determine (1) what has been done to overcome the hazards of the process during its further development, and (2) what can be done further to protect the worker or to eliminate the inherent dangers of the process." p. 1-2. "Railroad cars" constitute "Establishment no. 11" in the summary of data. Monthly Labor Review, May 1929, p. 1-43.

Women in Odd and Unusual Fields of Work, by Miriam Simons Leuck. One article in a volume entitled "Women in the Modern World" that mentions some of the work on railroads now being done by women. Annals of the American Academy of Political and Social Science, May 1929, p. 166-179

Looking Backward

Fifty Years Ago

The St. Louis, Iron Mountain & Southern [now part of the Missouri Pacific] proposes on June 28 to change the gage of its entire line from St. Louis, Mo., to Texas, about 500 miles, from 5 ft. to 4 ft. 8½ in., and to do it in 10 hours, without interrupting the running of trains.—*Railway Age,* May 29, 1879.

A company in New York proposes to construct a 12,000 ft. railroad tunnel under the Hudson river, between Jersey City, N. J., and New York. The tunnel was originally started in November, 1874, when further work was enjoined by the Delaware, Lackawanna & Western; and that litigation has now been terminated.—*Railway Age,* May 29, 1879.

Forty-one locomotives on the Canada Southern [now part of the Michigan Central] during 1878 were operated 2,250,707 miles or an average of 4,497 miles per month each. Five of the locomotives ran from 70,000 to 77,000 miles each—one, a freight engine, making 77,243 miles. The average cost per mile was: Repairs, 1.82 cents; small stores, 0.07; oil and waste, 0.53 cents; total, 2.42 cents. In the four consecutive years from 1875 to 1878 inclusive, one engine ran 212,031 miles, or an average of 4,417 miles per month, and the average cost for repairs, including small stores, was 1.06 cents per mile.—*Railway Age,* May 29, 1879.

Twenty-Five Years Ago

By a vote of 105 to 59 the Canadian House on May 27 finally passed the Grank Trunk Pacific railway bill, assuring the construction of a new transcontinental railway from Moncton, N. B., by way of Quebec and Winnipeg to the Pacific Ocean at Port Simpson or Bute Inlet, B. C., 3,125 miles.—*Railway Age,* June 3, 1904.

The preservation of timbers for cars has been prominently suggested for the first time in this country in the discussion of timber treatment at the April meeting of the New York Railroad Club. It is estimated that 25 per cent would be added to the first cost of the car and that its life would be prolonged 50 to 100 per cent. *Railway Age,* June 3, 1904.

The new electric locomotives of the New York Central, which will be used in passenger service between Grand Central Station, N. Y., and Croton, 34 miles, will be capable of developing a maximum rating of 2,800 h. p., or about 50 per cent more power than that of the largest steam passenger locomotives now in service on that road.—*Railroad Gazette,* June 3, 1904.

The Wabash and the Wheeling & Lake Erie have entered into a 50-year contract for an interchange of traffic, under the terms of which 25 per cent of the earnings of all freight originating at the Pittsburgh (Pa.) terminal and accruing to the two railroads shall be set aside to guarantee the interest of $45,000,000 of bonds which are to be used to finance the construction of the new terminal.—*Railroad Gazette,* June 3, 1904.

Ten Years Ago

An appropriation of 1,200,000 instead of the $750,000,000 held up by the Senate filibuster at the last session of Congress, is now required by the Railroad Administration for its "revolving fund."—*Railway Age,* May 30, 1919.

The Pennsylvania 20-hour train, the Broadway Limited, from New York to Chicago, which was discontinued before the roads had been taken over by the government, was restored on May 24 after a suspension of 18 months—*Railway Age,* May 30, 1919.

Odds and Ends of Railroading

It may be of interest to mention that Monte Blue, who has starred in a number of railroad movies recently, was once a locomotive fireman.

How the Mighty Have Fallen

The old home of Col. Cyrus K. Holliday, the "father of the Santa Fe," is being razed to make way for an up-to-date gasoline filling station.—Topeka, (Kan.), notes from the Santa Fe Magazine.

Messenger Goes Abroad

Burton McDougall is a telegraph messenger for the Canadian Pacific at Moose Jaw, Sask. But that isn't all. Burt is a prominent Boy Scout, rating as a King Scout and being the possessor of the coveted Class C gold cord of honor. He has also been selected as one of the contingent of scouts who will go to England for the Boy Scouts' convention jamboree this summer.

Longest Feminine Service Record?

Miss Luella Eaton, telegrapher and clerk in the freight office of the Pere Marquette at Greenville, Mich., claims the record for the longest service among women railroaders. She has been in the employ of the P. M. at Greenville since 1880, or 49 years; 44 years of that time having been spent as telegrapher and ticket clerk in the passenger station.

Certainly a Record

All four babies of Mariska Horvath, wife of a Hungarian peasant, were born in a railway carriage, the last one only a few days ago in a passenger train near Kaposvar, where she intended to visit the market. The family, which has shown so much attachment to the state railways and so much speed in growing, was rewarded by a free ticket valid for this year on the line between their home village and Kaposvar.

Railways Forming County Lines

As recently reported, the Atlantic Coast Line forms the county line for a distance of several miles in South Carolina. This, was, at the time, regarded as the only instance of this. Now, however, comes the Atchison, Topeka & Santa Fe, whose main line separates Coconino and Yavapai counties, in Arizona, for a distance of 58 miles, between Ash Fork and Nelson. This is probably the record.

Payment by Weight

The "payment by weight" of passenger and personal luggage combined, proposed for the air service to India, has been anticipated in at least one instance by the North-Western Railway, of India. When quartered at Ambala, in the Punjab, about 1893-94, I was told by a railway official that a naked fakir swathed in iron chains had that day asked for a third-class ticket to Amritsar. He was informed that he would have to pay for his chains by weight in addition. He gleefully stated that they could not be taken off, and so could not be weighed, and foolishly stated that they weighed over two maunds (160 lb.). As it was found impossible to detach the chains owing to their being wrapped round and round his body and forged together at the ends, he and his chains were weighed en bloc and the parcel was charged, much to his disgust, at passenger and personal luggage rates.—Colonel A. P. D. Harris, in The London Times.

Memory Brings Reward to Waitress

Because she remembered a glass of hot orange juice, Miss Enid Jones, waitress in the Southern Pacific Company's restaurant in the station at Los Angeles is richer by $50, and a woman passenger has regained a diamond ring valued at $1500. It happened like this. While cleaning off a table, Miss Jones was startled to find a large and beautiful diamond ring among the crumbs. She took it to the manager of the restaurant, F. K. Shilling and between the two they tried to recall who had sat at the table. Miss Jones could recall no peculiarities of dress, but she did remember serving a lady with a glass of hot orange juice. Scanning the papers a few days later, Miss Jones spotted an ad that undoubtedly referred to the ring. The manager 'phoned to the advertiser and in a short time the woman arrived at the restaurant.

"What did you have for breakfast?" Shilling asked her.

"Well, I had a glass of hot orange juice, and—"

"That's sufficient identification," the manager said and handed her the ring. He also told her that Miss Jones was responsible for finding the ring, with the result that the waitress was rewarded with a check of $50.

Running Without Orders

As a real thrill in his long experience, Charles Trott, retired Southern Pacific engineman, recalls the time when he ran without orders. Trott was stationed at Truckee, Cal., when word came that Reno, Nev., was on fire. The population of that city was then about 3,500 and the fire protection was meager. The snowshed fire train, with tank cars of water, was immediately dispatched to Reno, with Trott at the throttle. "Right of way was given over all trains to Verdi", says Trott "The train roared its way madly down the canyon to Verdi, where it was found that the wires were down and no further orders to be had, so the crew, on its own initiative, completed the trip. This was extremely hazardous, as there was no way of knowing if the line was clear. On reaching Reno, the whole town was found to be ablaze, and before the fire was extinguished it had cost seven lives and over a million dollars." Running a train at full speed without orders and with no knowledge of what is ahead, beats anything he ever experienced for a thrill, Trott says.

Where Finders Are Not Keepers

American travelers are the most careless in the world: This is the opinion of A. V. Keane of the Southern Pacific's lost and found department, and Keane ought to know for he has compiled data on railroads in all parts of the civilized world which show that the American traveler leads by far in articles lost on trains.

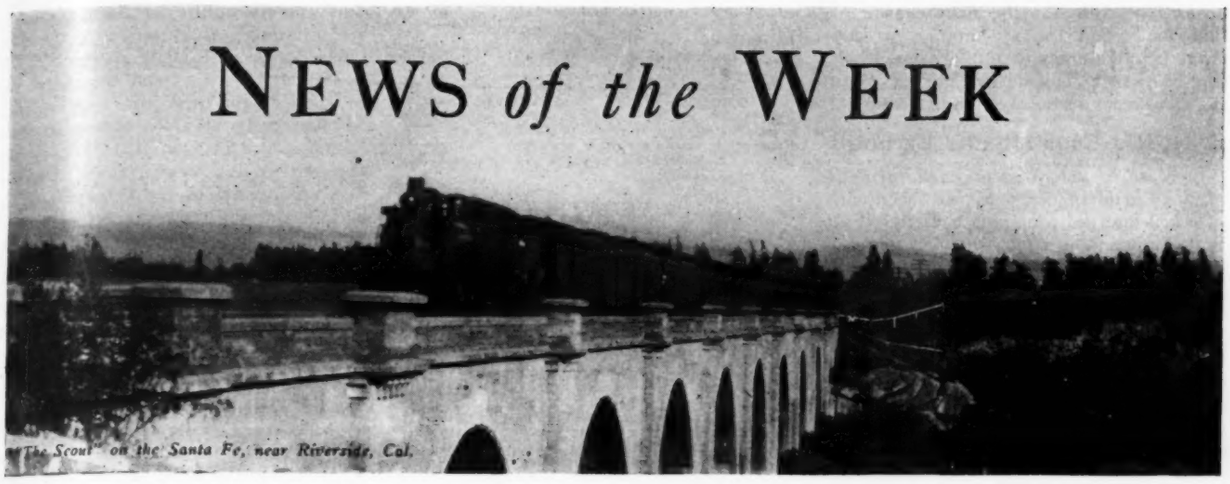
"It's about a toss up between men and women as to which are the most careless," said Keane. "Men leave overcoats, umbrellas, hats, pocket combs, shaving materials, fountain pens, pocket knives, overshoes, suitcases, cameras and even toupes aboard our trains. Women leave vanity cases, handbags, jewelry, mirrors, combs, handkerchiefs, umbrellas, fur coats, shoes, sweaters, purses, hats and other feminine articles on the trains and especially in the dressing rooms. Strange to say, very few children's articles are turned in to our lost and found bureaus.

"Every effort is made to ascertain the owner of articles found on our trains and in stations, company hotels and restaurants. Sometimes the owners of lost articles are found after months of correspondence and in many cases they had forgotten they lost the articles.

"After a rain hundreds of umbrellas and overcoats are left on our suburban trains and ferryboats. Seldom are these articles reclaimed at the lost and found bureaus.

"It's comical to note some of the peculiar articles that are turned in from the lost and found bureaus. At one time a live pig was turned in and at another a six months old baby was found on one of our ferryboats. However, the child was soon called for by distracted parents who had separated at Oakland Pier, each believing that the other had the child. Some of the odd articles turned in have included crutches, false teeth, toupes, automobile tires, velocipedes, glass eyes, wooden legs, arch supporters, and hip flasks."

NEWS *of the* WEEK



"The Scout" on the Santa Fe, near Riverside, Cal.

THE INTERSTATE COMMERCE COMMISSION acted with unusual promptness on May 25 in issuing orders granting the applications filed with it on May 22 on behalf of officers and directors of the Chesapeake & Ohio for authority to hold positions also with the Pere Marquette. J. J. Bernet, heretofore president of the Erie, was authorized to be president and director of the Chesapeake & Ohio, the Hocking Valley and the Pere Marquette; W. J. Harahan to be senior vice-president and director of the three roads; Herbert Fitzpatrick to be vice-president and general counsel of the three roads, and O. P. Van Sweringen, George T. Bishop, Otto Miller, Alva Bradley and F. H. Ginn to be directors of the Pere Marquette as well as of the C. & O.

Passenger Officers to Meet in Winnipeg

The American Association of Passenger Traffic Officers will hold its annual meeting at Winnipeg, Manitoba, on September 16 and 17.

Annual Outing of New York Railroad Club

The annual outing of the New York Railroad Club will be held at Travelers Island on July 11 at the clubhouse of the New York Athletic Club.

Central Railway Club Annual Outing

The Central Railway Club, Buffalo, N. Y., will hold its annual summer outing at the Bardol Estate, one mile north of the Canadian end of the Peace Bridge, on July 13. The party will leave the Lehigh Valley terminal, Buffalo, at 10:30 a.m. daylight saving time.

Development Association Meets at Houston

The American Railway Development Association, at its twenty-first annual meeting at the Lamar Hotel, Houston, Tex., on May 22, 23 and 24, elected M. C. Burton, general industrial agent of the Atchison, Topeka & Santa Fe at Topeka, Kan., as president for the ensuing year. R. G. East, agricultural agent, Pennsylvania, Shelbyville, Ind., was elected first vice-president and a second vice-president and a secretary-treasurer will be selected at the semi-annual meeting at Chicago in December. About 100 delegates were present at the meeting which included as one of its features a boat trip down the Houston ship channel.

Alternate Plan Prepared For N. Y. Dock Improvement

An alternate plan for facilities to accommodate large transatlantic steamships, should the present application to the War Department for permission to build 1,000 ft. piers at Forty-eighth and Fiftieth streets in New York City be refused, has been prepared by the city's Department of Docks. This plan, which involves the expenditure of between $23,000,000 and $24,000,000, includes the purchase by the city of six blocks of property between Twenty-third and Twenty-ninth streets, extending from the west side of Eleventh avenue to the Hudson river, and the extension of the piers inland from the established pier-head line. The plan will give pier lengths varying from 1,100 to 1,400 ft. The property at present is used chiefly for railroad yards and warehouses and it stated that no objections will be made by the railroad and steamship lines concerned, provided the city supplies similar accommodations. The railroads affected include the Erie, Lehigh Valley, Baltimore & Ohio, and the Delaware, Lackawanna & Western.

Equipment on Order

Freight cars on order on May 1 by the railroads of this country totaled 44,429, as compared with 22,242 on the same date last year, according to reports received from the carriers by the Car Service Division of the American Railway Association. On April 1, this year, 42,561 freight cars were on order.

Of the total on May 1, 19,579 were box cars, an increase of 11,178 compared with the same date last year. Coal cars for which orders have been placed number 20,040, an increase of 13,035 compared with the number of such cars on order on May 1, last year. Reductions, for the most part small, were reported in the number of refrigerator, stock and other kinds of freight cars on order this year compared with one year ago, excepting flatcars which showed a slight increase.

Locomotives on order on May 1, this year, numbered 346 compared with 137 on the same day in 1928.

New freight cars placed in service in the first four months of 1929 totaled 15,927 of which box cars totaled 7,889; coal cars 4,465; flat cars 1,116; refrigerator cars 2,009, and stock cars 387. Sixty one cars of other classes were also installed in service.

New locomotives placed in service in the first four months of 1929 totaled 166.

Freight cars or locomotives leased or otherwise acquired are not included in the above figures.

Senator Brookhart as Santa Claus

Senator Brookhart, of Iowa, has a scheme for preventing the high freight rates that he fears will result from the O'Fallon decision, and for reducing interest rates and unemployment in the United States at a single stroke. He introduced in the Senate on May 23 a bill to provide for the construction by the federal government of a national highway system of 25,000 miles, built to carry the heaviest traffic, "especially to carry truck trains," to compete with the railroads, to be financed with an issue of $2,000,000,000 of non-interest-bearing United States notes. He says he got the idea from a statement by Henry Ford quoted in an editorial by Arthur Brisbane.

The Senator said that interest rates in New York have risen as high as 20 per cent and that this is conclusive proof that we do not have enough circulating medium; and that the Supreme Court in the O'Fallon case has rendered a decision "which some have interpreted will increase railroad rates by $2,000,000,000 per year," although he is not one who would place that interpretation upon the decision. He proposes a system of transcontinental highways with branches, which he estimates would cost about $80,000 a mile. "If our railroad rates are to be increased," he said, "we especially need a system of highways of that kind and we need it now." This would not cost the government anything, according to his scheme, except the cost of printing the notes because there would be no interest to pay and the Bureau of Public Roads would be authorized to establish "a system of

licenses or tolls for the maintenance of said roads and the redemption of said United States notes at rates that will accomplish such redemption in not more than 20 years nor less than 10 years."

C. N. R.'s Four Months Earnings

Increase in the gross and net earnings of the Canadian National for the month of April and the four-month period from January including April, show an increase in net earnings for the month of April, in comparison with the month of April, 1928, of 54.05 per cent.

Gross earnings were $22,455,244 in comparison with $19,811,399 for April, 1928, an increase in favor of April this year of $2,643,845, or 13.35 per cent. In the same month operating expenses amounted to $18,012,063 in comparison with $16,927,112 in April, 1928, an increase of $1,084,950.93, or 6.41 per cent.

Operating net totalled $4,443,180 as against $2,884,286, an increase of $1,558,894, or 54.05 per cent.

The operating ratio in April was reduced to 80.21 per cent as against 85.44 per cent in the similar month of last year.

For the first four months of the year gross earnings totalled $82,421,071, while for the similar four month period of 1928 gross earnings totalled $79,429,422, an increase during the current year of $2,991,649, or 3.77 per cent. In the same period of 1929 operating expenses amounted to $67,127,122, an increase of $1,105,980 over the corresponding four months of 1928, or 1.68 per cent.

This leaves for the first four months of this year net earnings totaling $15,293,948 which compare with $13,408,280 in the corresponding period of 1928, an increase in favor of the present year of $1,885,668, equivalent to 14.06 per cent.

The operating ratio for the first four months of this year has been reduced to 81.44 per cent as against 83.12 per cent for that period of 1928.

Program for P. & S. Convention

The tenth annual meeting of the Purchases & Stores division of the American Railway Association will convene in the Palace hotel, San Francisco, Calif., at 9 a. m., on Monday, June 24, according to the program which announces the addresses and reports of committees as follows:

MONDAY, JUNE 24, 1929
9:00 a.m. to 1:30 p.m.

Opening exercises
Address by Paul Shoup, president, Southern Pacific System
Address by R. H. Aishton, president, American Railway Association
Address by the chairman, C. C. Kyle, purchasing agent, Northern Pacific.
Report of general committee
Report on stores department book of rules
Report on classification of material
Report on comparisons of material stock reports and store expenses
Paper on discounts, by F. S. Austin, Boston & Albany
Report on forest products
Report on the recovery, repair and reclamation of discarded material—classification, handling and sale of scrap—joint committee on reclamation
Motion pictures of St. Louis-San Francisco reclamation plant

TUESDAY, JUNE 25, 1929
9:00 a.m. to 1:30 p.m.

Report on stores department buildings and facilities for handling material
Report on control of shop manufacturing orders for stock material
Report on control of material and supplies requirements
Presentation of annual contest papers
"Improvement is a Vital Necessity," by Samuel A. Hayden, M-K-T.
"A Standard Method for Calculating Stock Turn-Over," by A. G. Bohorfoush, Sou.
Report on selection and training of employes in purchasing and stores departments
Report on stationery and printing
Report on purchasing agent's office records and office organization
Report on terminal railway storekeeping
Report on delivery of material to users
Report on (a) standardization and simplification of stores stocks
(b) disposition of surplus or inactive materials

WEDNESDAY, JUNE 26, 1929
9:00 a.m. to 1:30 p.m.

Paper on bin tags, by L. C. Thomson
Report on unit pricing of materials and unit piling
Report on purchasing, storage and distribution of equipment and supplies used in dining cars, hotels and commissaries
Report on fire prevention
Report on stores department safety practices
Report on control of line stocks
Report on workable rules in connection with the carrying out of the provisions of Section 10 of the Clayton Anti-Trust Act
Report on locomotive fuel
Report of joint committee on metric system
Closing Business.

Abandonment of Intrastate Service in Alabama—Supreme Court Acts

Section 9713 of the Alabama Code, 1923, prohibits a railroad from abandoning any part of its public service without a permit from the Public Service Commission, and sections 9730, 9731, 5350, 5399, prescribe severe penalties for wilful abandonment without permission, including punishment of officers. Without applying for permission the St. Louis-San Francisco discontinued two interstate trains furnishing intrastate service between cities and towns in Alabama, and then sued the state commission in the federal district court for middle Alabama to enjoin the commencement of proceedings to enforce the penalties prescribed. An application for an interlocutory injunction was denied, 27 Fed. (2d) 893. The railroad appealed.

The railroad claimed that the statute is void under the federal Constitution, and it had no way of testing its constitutionality except by this suit. The Supreme Court of the United States holds that the railroad should not have discontinued the intrastate service without first applying to the commission for permission. The court said: "No constitutional right could have been prejudiced by so doing. No emergency existed requiring immediate action. And no serious financial loss would have been incurred by the slight delay involved.

"The past failure of the railway to apply for leave to discontinue the service does not, however, justify exposing it and its officers and employees to the severe penalties prescribed by the statute. It may be that, upon full presentation of the facts, the commission would find that to continue the service would subject the carrier to an unreasonable burden; or the carrier may suggest some satisfactory substitute for the specific service now demanded of it. The commission should give to the railway the opportunity of presenting the facts; and if an application is made promptly, the matter should be determined by the commission without subjecting the railway to any prejudice because of its failure to ask leave before discontinuing the service. Compare Lawrence v. St. Louis-San Francisco, 278 U. S. 228. To this end the decree will be vacated; and the restraining order will be continued. If after such hearing the commission insists that the service objected to be restored, further proceedings appropriate to the situation, may be had in the cause in the district court." St. Louis-San Francisco v. Alabama Public Service Commission. Decided May 20, 1929. Opinion by Mr. Justice Brandeis.

Annual Meeting of Boiler Maker Supply Men

At the annual meeting of the Boiler Makers' Supply Men's Association, held at the Atlanta-Biltmore Hotel, Atlanta, Ga., May 23, in conjunction with the twentieth annual convention of the Master Boilers Makers' Association, the following officers were elected for the coming year: President, Harry Loeb, Lukens Steel Company; vice-president, Irving H. Jones, Central Alloy Steel Corporation; secretary, Frank C. Hasse, Oxweld Railroad Service Company, and treasurer, George R. Boyce, A. M. Castle & Co.

A list of the exhibitors at this convention follows:

American Locomotive Company, Chicago.—Flexible and rigid staybolts, flexible staybolt parts. Represented by Ross Anderson, Ben Woody and G. P. Robinson.

Air Reduction Sales Company, New York.—Oxygen, acetylene and oxy-acetylene welding and cutting apparatus and supplies. Represented by E. M. Sexton, R. T. Peabody, H. R. Walsh, G. Van Alstyne, S. W. Booth and W. R. Roberts.

American Arch Company, Inc., New York.—"Scene-in-Action" pictures showing Security sectional arch. Represented by T. Mahar, W. W. Neale, T. F. Kilcoyne and George Wagstaff.

Arrow Tools, Inc., Chicago.—Chisels, calking tools, beading tools, rivet sets, backing-out punches and various other small forged tools. Represented by N. W. Benedict and D. B. Parker.

Bethlehem Steel Company, Bethlehem, Pa.—Charcoal iron boiler tubes, engine bolt and staybolt iron and steel, bolts, nuts and rivets, and boiler and locomotive firebox plate. Represented by George Raub and E. A. Jones.

Bird-Archer Company, New York.—Various chemicals, sludge removers and blow-off cocks. Represented by H. C. Harragin, J. D. Callahan and H. P. Mauer.

Boiler Maker, The, New York.—Represented by R. E. Beauchamp, L. S. Blodgett and George Slate.

Bourne-Fuller Company, Cleveland, Ohio.—Climax alloy steel, solid and hollow staybolts, Upson rivets, bolts, nuts and specialties. Represented by C. H. Aiken.

Brubaker, W. L., & Bros. Company, New York.—Spiral inserted blade reamer, special crown bolt tap, spiral fluted; combined flue sheet tool and other tools. Represented by W. Searls Rose and C. W. Borneman.

Burden Iron Company, Troy, N. Y.—Samples of finished products. Represented by William Downs and John C. Kuhns.

A. M. Castle & Co., Chicago.—Represented by George R. Boyce and L. J. Quetsch.

Central Alloy Steel Company, Massillon, Ohio.—Toncan iron boiler plate and tubes. Represented by Irving H. Jones, Howard L. Miller, G. T. Ramsey and J. B. Hammond.

Champion Rivet Company, Cleveland, Ohio.—Various specimens of rivets, etc. Represented by D. J. Champion and T. J. Lawless.

Chicago Eye Shield Company, Chicago.—Welding glass, helmets, goggles, sand blast helmets and other eye and head protectors. Represented by Robert Malcom and John Liautaud.

Chicago Pneumatic Tool Company, New York.—Staybolt tapper, corner drill, rivet buster, riveter, chipper, etc. Represented by J. L. Rowe, D. E. Cooke, E. K. Lynch, H. R. Deubel, L. F. Duffy and W. A. Andrews, Jr.

Cleveland Pneumatic Tool Company, Cleveland, Ohio.—Complete line of air tools and fittings, such as riveters, chippers, air drills, grinders, rammers and other air tools. Represented by O. C. Stoelker and C. J. Albert.

Cleveland Steel Tool Company, Cleveland, Ohio.—Punches, dies, rivet sets, compression dies, coupling nuts and chisel blanks. Repre-

sented by R. J. Venning, J. B. Corby, H. I. Kahn, W. F. Delaney and H. W. Leighton.

Dearborn Chemical Company, Chicago.—Samples of boiler feed water treatment, NO-OX-ID rust preventive, etc., and literature. Represented by J. W. Nutting and F. J. Boatright.

Detroit Seamless Steel Tubes Company, Detroit, Mich.—Locomotive tubes, including flues, arch tubes and superheater tubes; stationary boiler tubes and physical tests relating to boiler tubes. Represented by C. H. Hobbs, H. E. Ross and W. H. S. Bateman.

Electro-Chemical Engineering Corporation, Chicago.—One complete Gunderson process equipment for preventing pitting and grooving in locomotive boilers; pitted boiler tubes and sheets and boiler material protected by the use of the Gunderson electro-chemical process. Represented by O. W. Carrick.

Ewald Iron Company, Chicago.—Represented by W. R. Walsh.

Faessler, J., Manufacturing Company, Moberly, Mo.—Boiler makers' tools, flue rollers, flue expanders, flue cutters, etc. Represented by G. R. Maupin and P. C. Cady.

Falls Hollow Staybolt Company, Cuyahoga Falls, Ohio.—No exhibit.

Flannery Bolt Company, Pittsburgh, Pa.—Flexible staybolts, telltale staybolts, rigid solid and hollow staybolts and tools for installation. Represented by J. Rogers Flannery, E. J. Reusswig, Leo Finegan, E. S. Fitz Simmons, John H. Murrin, E. G. Flannery and James A. Murrin.

Forster Paint & Manufacturing Company, Winona, Minn.—Printed matter only. Represented by O. T. Caswell.

Garratt-Callahan Company, Chicago.—Boiler preservative. Represented by J. G. Barclay and W. F. Caspers.

Gary Screw & Bolt Company, Gary, Ind.—Bolts, nuts and rivets. Represented by G. J. Garvey.

General Refractories Company, Philadelphia, Pa.—Represented by J. T. Anthony.

Globe Steel Tubes Company, Chicago.—Boiler tubing, bushing stock and mechanical tubing, both plain and formed. Represented by E. C. Carroll and T. F. Clifford.

Huron Manufacturing Company, Detroit, Mich.—Washout plugs and arch tube plugs. Represented by H. N. Reynolds, E. C. Roddie and E. H. Willard.

Independent Pneumatic Tool Company, Chicago.—No exhibit.

Ingersoll-Rand Company, New York.—Represented by H. C. Burgess, W. A. Johnson and T. B. Scott.

International Nickel Company, New York.—Represented by A. L. Roberts.

Johnston Manufacturing Company, Minneapolis, Minn.—Reverse oil burner for furnaces and forges, non-clogging oil burner for rivet forges and heating torch. Represented by Harry L. Burrhus.

Lima Locomotive Works, Inc., Lima, Ohio.—Photographs of superpower locomotives. Represented by M. K. Tate.

Locomotive Firebox Company, Chicago.—Models of locomotive boiler and Nicholson thermic syphon. Represented by L. R. Pyle, C. A. Seley, C. M. Rogers, E. Frank Smith, E. J. Reardon and Walter J. Varner.

Lovejoy Tool Works, Chicago.—Lacerda dolly-bars, flaring tools, chucks, re-cupping tools, tube expanders and other boiler makers' tools. Represented by W. H. Dangel.

Lukens Steel Company, Coatesville, Pa.—Samples and test pieces of O. H. steel, nickel steel and toncan iron; also photographs and literature regarding products and process of manufacture. Represented by W. H. S. Bateman, Harry Loeb, Adolph Rider, Jr., and J. Frederic Wiese.

McCabe Manufacturing Company, Lawrence, Mass.—No exhibit.

National Tube Company, Pittsburgh, Pa.—Superheater tubes, hot roll seamless pipe, seamless boiler tubes. Represented by Henry P. Nelson, F. Murray, H. B. Robinson, P. J. Conrath, Oscar G. Steiner and J. W. Kelley.

Old Dominion Iron & Steel Works, Inc., Belle Isle, Richmond, Va.—Samples of staybolt iron and electric staybolt steel; solid and hollow rolled and finished bolts. Represented by Thos. S. Wheelwright and Major George Brooks West.

Otis Steel Company, Cleveland, Ohio.—Represented by George E. Sevey.

Oxweld Railroad Service Company, Chicago.—Oxy-acetylene cutting and welding apparatus. Represented by F. C. Hasse, C. S. Wright, E. P. Duren, W. D. Waldron, H. C. Jefferson, R. R. Kester, A. L. Hedgepath, W. A. Hogan, O. D. Hays and A. N. Lucas.

The Paulson Tools, Inc., Wallingford, Conn.—Beading tools, chisels, rivet sets, safety chisel, flue belling tools. Represented by Charles Loucks and J. J. Brosnan.

Penn Iron & Steel Company, Creighton, Pa.—Samples of special staybolt and engine bolt iron. Represented by Charles J. Nieman.

Pittsburgh Steel Products Company, Pittsburgh, Pa.—No exhibit.

Pratt & Whitney Company, Hartford, Conn.—Taps and tools for boiler work. Represented by A. J. Fox, R. E. Laffler, F. A. Armstrong and E. E. Cullison.

The Prime Manufacturing Company, Milwaukee, Wis.—Clear-vision windows, square-thread plugs, side windshields, washout and arch-tube plugs, composite washout plugs, two-seated gage cocks, tank-hose strainers and air-bell ringer. Represented by D. A. Lucas, F. C. Hasse, A. N. Lucas, William Leighton, C. S. Wright, R. R. Kester, William Champieux, O. P. Hays and J. S. Stone.

The Railroad Herald, Atlanta, Ga.—Represented by E. C. Laird.

Reading Iron Company, Reading, Pa.—Samples of charcoal iron boiler tubes and samples of staybolt and engine bolt iron. Represented by G. H. Woodroffe and W. H. S. Bateman.

John A. Roebling's Sons Company, Trenton, N. J.—Welding wire, gas and electric; wire rope safety slings, alligator wrenches, New Jersey spark arrester netting. Represented by George E. Huff and C. G. Mullings.

Rome Iron Mills, Inc., New York.—No exhibit.

Ryerson & Son, Jos. T., Inc., Chicago.—Represented by G. L. Shinkle, V. C. Cartus and A. W. Wilcuts.

The Superheater Company, New York.—Represented by C. H. David, W. E. Libby and A. C. McLachlan.

The Talmadge Manufacturing Company, Cleveland, Ohio.—No exhibit.

Torchweld Equipment Company, Chicago.—Complete line of non-flash gas welding and cutting equipment. Represented by R. M. Smith.

Ulster Iron Works, Dover, N. J.—Hand-puddled wrought iron, staybolt and engine bolt iron specimens, boiler studs, wrought iron rivets. Represented by C. F. Barton, W. W. Fetner, N. S. Thulin, John Craigie and E. W. Kavanagh.

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—J. D. Gowin, 112 W. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next meeting, June 25, 1929, Troutdale Inn, Denver, Col.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next annual convention, June 4-7, 1929, St. Regas Hotel, Mexico City.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, Supt. Dining Car Service, Monon Route, Chicago. Next meeting, October 8-10, Mount Royal Hotel, Montreal, Canada.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 292 Madison Ave., New York. Annual convention, September 28-October 4, 1929, Atlantic City, N. J.

AMERICAN RAILROAD MASTER TINNERS' COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borchert, 202 North Hamlin Ave., Chicago.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey st., New York, N. Y.

Division I.—Operating. J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago. Annual meeting, June 18-21, Denver, Colo.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.

Protective Section.—J. C. Caviston, 30 Vesey St., New York.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Next convention, Sept. 10-12, 1929, Hotel St. Paul, St. Paul, Minn.

Division II.—Transportation.—G. W. Covert, 431 South Dearborn St., Chicago. Next meeting, May 28-29, 1929, Stevens Hotel, Chicago.

Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering.—E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section.—H. S. Balliet, 30 Vesey St., New York. Stated meeting, September 10-12, 1929, Atlanta Biltmore Hotel, Atlanta, Ga.

Division V.—Mechanical.—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual meeting, June 25-28, 1929, Alexandria Hotel, Los Angeles, Cal.

Equipment Painting Section.—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual meeting, September 10-12, 1929, Muehlbach Hotel, Kansas City, Mo. Exhibit by Supply Men's Association.

Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual meeting, June 24-26, 1929, Palace Hotel, San Francisco.

Division VII.—Freight Claims.—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill.

Division VIII.—Motor Transport.—George M. Campbell, American Railway Association, 30 Vesey St., New York, N. Y. Next meeting, November, Toronto.

Car Service Division.—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, October 15-17, 1929, Roosevelt Hotel, New Orleans, La. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION. E. L. Taylor, Asst. to V. P., N. Y., N. H. & H., New Haven, Conn.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—Miss Page Nelson Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Annual convention, September 11-14, 1929, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Secretary: C. C. Ziegler, Greenfield Tap & Die Co., 13 So. Clinton St., Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, 30 Church St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 228 N. La Salle St., Chicago. Annual convention, January 28-30, 1930, Seattle, Wash.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Next meeting, June 19-21, 1929, Statler Hotel, Detroit, Mich.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 413 C. & N. W. Station, Chicago. Annual meeting, October 22-25, 1929, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th & H Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—E. H. Weaver, Westinghouse Air Brake Co., 80 E. Jackson Blvd., Chicago. Meets with International Railway General Foremen's Association.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—Annual exhibit at convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charon St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, Chicago & Alton, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—F. G. Wiegmann, 720 N. 23rd St., East St. Louis, Ill. Meetings first Tuesday of each month, except July and August, Broadview Hotel, East St. Louis, Ill.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—(See Master Car Builders' and Supervisors' Association.)

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Next meeting, August 20-22, 1929, Fort Shelby Hotel, Detroit, Mich. Exhibit by International Rail-

road Master Blacksmith's Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—W. A. Champieux, Oxweld Railroad Service Co., 80 E. Jackson Blvd., Chicago.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—L. G. Plant, 80 E. Jackson Blvd., Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn. Annual convention, September 17-20, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—L. R. Pyle, Locomotive Firebox Co., Chicago. Meets with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.

MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Annual convention, September 4-6, Hotel Sherman, Chicago.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Next convention, August 27-30, 1929, Glacier National Park, Mont.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: A. W. Smallen, C. M., St. P. & P., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July, and August.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Annual outing, July 11, Travers Island. Regular meetings 2nd Tuesday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington D. C. Annual convention, 1930, New Orleans.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa. Annual meeting, November, 1929, Hotel Stevens, Chicago.

RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.—(See Master Car Builders' and Supervisors' Association.)

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 15-17, 1929, Toronto, Canada

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, American Railway Association. (No exhibit at 1929 meeting.)

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Annual meeting, September 18-20, 1929, Royal York Hotel, Toronto, Ont., Canada.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Exhibit by Track Supply Association. Next convention, Sept. 19-21, 1929, Stevens Hotel, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings 2nd Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.

SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.—Clyde Kimball, Inman Shops, Atlanta, Ga. Meet semi-annually.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, June, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, (Treasurer), Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Div. V. Equipment Painting Section.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., 80 E. Jackson Blvd., Chicago. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, Gen. Supt., R. S., New York Central, Buffalo, N. Y. Annual meeting, September 24-28, 1929, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—W. J. Dickinson, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

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Wide World

A 600-hp. Electric Locomotive with Snow Plow in the Deep Snow on the Bernina Pass, Switzerland

Traffic

The Central Vermont announces that its Williamstown branch, which was put out of business by the disastrous flood of November, 1927, has been reopened for service. This line extends from Barre, Vt., southward to Williamstown, about seven miles.

A coach-lounge is a feature of the Erie Limited which the Erie will place in service between Chicago and New York on a 25-hr. schedule on June 2. In this car, smoking is permitted. The cars in this train are cooled by electric fans and have running hot and cold water. The floors are covered with rubber tiling and the aisles are carpeted.

Estimates made by the Southern Pacific indicate that shipments of spring lambs from California points this year will exceed previous figures by more than 70,000 head. Approximately 400,000 head will have been moved during the spring lamb season which began on April 1 and is expected to extend into June. The heaviest movements are from the San Joaquin and Sacramento valleys.

The traffic department of the St. Louis-San Francisco has estimated that the total movement of strawberries from points on the lines of that railroad in Missouri, Arkansas and Oklahoma during the 1929 season will be 2,550 carloads, as compared with 2,313 carloads in 1928. The first car this season was sent from Van Buren, Ark., on May 1. It is expected that the movement of Missouri strawberries will start on May 20.

In an attempt to aid the wheat farmers along its lines, the agricultural department of the Chicago, Rock Island & Pacific has circulated an appeal for the construction of storage bins on farms to obviate the dumping of wheat on overloaded markets at a possible loss. The circular calls attention to the generally recognized idea that without additional farm storage no successful system of co-operative marketing or farm relief measure can be properly developed. Farmers now realize, the circular states, that the combine harvester has revolutionized wheat harvesting and that they cannot afford to pile wheat on the ground.

Hoch-Smith Grain Argument

What might almost be called an argument "marathon" was begun before the Interstate Commerce Commission on May 27 in the western grain rate case, Part 7 of its general rate structure investigation under the Hock-Smith resolution, in which Examiners Mackley and Hall recently recommended, in a proposed report, a readjustment of the freight rates on grain in the western district on a mileage scale basis. The argument is scheduled to continue for at least two weeks, pos-

sibly longer, allotments of time having been made to 75 persons, totalling about 50 hours, in addition to the representatives of the railroads who were assigned 16 hours. Requests for over 100 hours of time had been submitted to the commission in advance and ordinarily a day of argument before the commission consists of four or five hours. Those given time included representatives of 15 state commissions, 30 primary markets and a large number of others appearing on behalf of grain growers, dealers, millers, elevators and exchanges.

The report of the examiners was itself a voluminous document, although it did not purport to cover all the issues raised in the record of 53,000 pages of transcript, 2,100 exhibits and 15,000 pages of briefs.

The examiners recommended a finding that the general level of the rates on grain and grain products cannot be condemned as unreasonable nor reduced by mandate of the Hoch-Smith resolution, but that the rates should be redistributed more equitably. The scales proposed, therefore, would increase rates in some parts of the territory, and reduce them in others.

John E. Benton, general solicitor for the National Association of Railroad and Utilities Commissioners, who began the argument, took the position that adoption of the examiners' report would defeat the purpose Congress had in view when it enacted the resolution and would actually increase the rates on grain by millions of dollars. He said the increases proposed are in the districts where grain moves in greatest volume and the reductions in those where less grain moves.

He also took sharp issue with the commission's construction of the resolution by which it had held that before reducing rates it must investigate for the purpose of finding out whether and to what extent a depression exists in agriculture. He contended that Congress had declared a depression and directed reductions for all products of agriculture.

Foreign Railways

Highway Crossing Signs in New Zealand

The government of New Zealand has adopted standard signs for highway crossings of railroads at grade, to go into effect on June 1. The Railway Department (Government Railways) is to be responsible for some of the signs and the municipal authorities for others. An ordinary sign, reading RAILWAY CROSSING, with letters not less than 10 in. high, is to be set up at a distance of 900 ft. to 1050 ft. from the crossing.

Where there is a railroad crossing on a side road, branching off from a main road, this sign will be set at a suitable distance, and will be lettered, below, ON SIDE ROAD.

At crossings at which the law requires all vehicles on the highway to stop before passing over the tracks, there will be a yellow board, hexagon shape, reading, COMPULSORY STOP. This sign, which is to be used where there is no automatic alarm, is to be set from 20 ft. to 50 ft. from the crossing.

The law requires all motor vehicles to be run at reduced speed over crossings, and failure to reduce speed as required, or failure to stop at a compulsory sign, is punishable by a fine of ten pounds.

Subsidiary of General Electric Makes Agreement to Aid Soviet Union

A "technical assistance agreement," providing for a broad exchange of patents, designs and engineering and manufacturing information for ten years has been made with the Russian Soviet Union by the International General Electric Company, a subsidiary of the General Electric Company. The contract, ratified recently by the Soviet authorities, will become effective on July 1, according to an announcement made by H. H. Dewey, vice-president of the International General Electric, and Saul G. Bron, chairman of the Amtorg Trading Corporation (representatives of Russia in the United States).

According to the joint announcement, American engineers will be sent to the Soviet Union to assist the Soviet Electro-Technical Trust in carrying out its plans of expansion of the electrical industry in all its phases. The engineering assistance to be rendered by the International General Electric Company will involve the construction of electrical apparatus and machinery for use in electric lighting, generation and transmission of power and its application to industry. Soviet engineers will visit this country to study American methods employed in the manufacture of electrical equipment and machinery.

The Soviet Electro-Technical industry has a five year-program which contemplates a score of new factories and additions to existing plants, the whole to cost approximately $85,000,000. Production of electrical current which amounted to 5,500,000,000 kilowatt hours last year is to be increased to 20,000,000,000 kilowatt hours.

Railway Passenger Tax Abolished in Great Britain

The Chancellor of the Exchequer of Great Britain, in his recent budget submitted to Parliament, provided for a conditional abolition of the railway passenger tax. The condition was that the railway companies spend the capital equivalent of the annual passenger tax payment for improvements to their physical properties. Based on the 1928 tax collections of £362,917 and a six per cent interest rate the capital sum to be spent is in excess of £6,000,000 or the equivalent of approximately $30,000,000.

The Railway Gazette (London) finds the abolition most gratifying since it considers "This tax has always been an anomaly, and its injustice has become more and more prominent with the increasing competition from motor coaches on which no such tax is levied."

The first British law dealing with the railway passenger duty was passed in 1832. It required railway companies to pay 0.5d (one cent) a mile for every four passengers carried. Because of accounting difficulties the act was amended in 1842 to fix the tax at five per cent of gross passenger revenues. The Railways Regulation Act, 1844, exempted from duty the 1d a mile fares charged on what were long called "Parliamentary trains," but the general exemption of 1d a mile fares from duty came with the passage of the Cheap Trains Act, 1883, which also reduced to two per cent the duty on higher fares between specified urban stations.

In 1917 the government increased fares 50 per cent which increase would have brought the greater proportion of third-class fares under the tax. An accompanying, act, however, had the effect of suspending the duty during the period of government control. The Finance Act, 1921, gave the railways the same exemption from duty on minimum fares as 1d a mile fares formerly enjoyed so that until the abolition the duty has been two per cent on first and second class fares in certified urban districts and five per cent elsewhere.

The improvements, which it is contemplated that the capital equivalent of the annual tax payment will provide, include such items as port equipment, terminal and yard facilities.

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Snowbucking Operations on the Alaska R. R.

Equipment and Supplies

Locomotives

THE NEW YORK CENTRAL is asking for bids until June 5 on 25 of the 4-6-4 type locomotives and 25 of the 4-8-2 type.

FOLEY BROTHERS, St. Paul, Minn. have ordered one 600 hp. oil-electric switching locomotive from the Ingersoll-Rand and General Electric companies.

THE ERIE has ordered one 800 hp. oil-electric switching locomotive from the Ingersoll-Rand and General Electric companies.

THE MISSISSIPPI CENTRAL has ordered one 2-8-2 type locomotive from the American Locomotive Company. This locomotive will have 23 by 28 in. cylinders and a total weight in working order of 251,000 lb.

THE RUTLAND has ordered three 4-6-2 type locomotives from the American Locomotive Company. These locomotives will have 25 by 28 in. cylinders and a total weight in working order of 293,000 lb. Inquiry for this equipment was reported in the *Railway Age*, issue of February 16.

Freight Cars

THE NATIONAL RAILWAYS OF MEXICO are reported to be inquiring for 800 box cars.

THE COLUMBUS AND GREENVILLE is reported to have ordered 300 box cars from the American Car & Foundry Company.

THE DETROIT EDISON COMPANY is inquiring for five gondola cars and five hopper cars of 50 tons' capacity.

THE INTERNATIONAL HARVESTER COMPANY is now inquiring for 13 side dump hopper cars of 70 tons' capacity.

THE CENTRAL OF NEW JERSEY is inquiring for 200 steel gondola cars of 70 tons' capacity.

THE BALTIMORE & OHIO has ordered 1000 box car bodies from the Standard Steel Car Company. This is in addition to orders reported in the *Railway Age* of May 25.

THE CANADIAN PACIFIC has placed an order for 500 flat cars 46 ft. long. The company recently received from the builders 63 automobile cars and 30 refrigerator cars built by the National Steel Car Corporation.

THE WICHITA FALLS & SOUTHERN order for 15 ballast cars reported in the *Railway Age* of May 25 as having been ordered from the American Car & Foundry Company are to be of the Hart convertible type. The order was given to the Rodger Ballast Car Company, but the cars will be built by the American Car & Foundry Company.

Passenger Cars

THE GREAT NORTHERN has ordered one dining car from the Pullman Car & Manufacturing Corporation.

FERROCARRIL TERMINAL CENTRAL DE BUENOS AIRES.—See Dwight P. Robinson & Co. of Argentine, Inc.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered three multiple unit motor cars and six multiple unit trailer cars from the Osgood Bradley Car Company. Inquiry for this equipment was reported in the *Railway Age* of May 11.

THE HOCKING VALLEY has ordered two club dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported under the name of the Chesapeake & Ohio, in the *Railway Age* of May 4.

THE WESTERN RAILWAY OF ALABAMA AND THE GEORGIA RAILROAD have ordered eight steel baggage and mail cars, 70 ft. long, from the American Car & Foundry Company. Inquiry for this equipment was reported under the name of the Atlanta & West Point in the *Railway Age* of May 11.

DWIGHT P. ROBINSON & COMPANY OF ARGENTINE, INC., with office at Philadelphia, Pa., is asking for bids on 50 steel passenger cars for subway service of the Ferrocarril Terminal Central de Buenos Aires. Proposals including drawings are to be submitted to the Philadelphia office June 10.

Machinery and Tools

THE ERIE has ordered two 25-ton locomotive cranes from the Ohio Locomotive Crane Company.

Iron and Steel

THE NORTHERN PACIFIC has ordered 400 tons of steel for a bridge at St. Paul, Minn., from the McClintic-Marshall Company.

THE PENNSYLVANIA has ordered 400 tons of steel for a bridge at Dayton, Ohio, from the McClintic-Marshall Company.

THE CLEVELAND UNION TERMINAL has ordered 600 tons of structural steel for locomotive repair shops and sheds at Cleveland, Ohio, from the Massillon Bridge & Structural Company.

Signaling

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company 133 position light signals with relays, rectifiers and other material for the installation of an automatic block system on its St. Louis division, aggregating 94 miles single track.

THE CANADIAN PACIFIC has ordered from the Union Switch & Signal Company 29 semaphores with relays and other material for installation at various locations in the vicinity of Winnipeg.

Supply Trade

The Alemite Manufacturing Corporation, Chicago, has changed its name to the **Alemite Corporation.**

J. Jay Vandergrift, formerly of the Transportation Equipment Corporation, has been appointed special representative to the transportation companies for the **Rubberset Company,** Newark, N. J.

The Western Electric Company, in order to make provision for the future growth of its Kearny, N. J. plant, has signed a contract to purchase the Ford assembly plant at Kearny.

The Johns - Manville Corporation, New York, has moved the Milwaukee sales office of its western division to the Railway Exchange building, 97 East Wisconsin avenue, Milwaukee, Wis.

A. H. Told, general manager of the Positive Rail Anchor Company, Chicago, has moved his office from 1928 West Forty-sixth street, Chicago, to 606 Railway Exchange building.

The Chicago Steel and Wire Company and its associate, the **Fusion Welding Corporation,** Chicago, will construct a general office building which will add over 8,000 sq. ft. to the space they now occupy. **F. O. Weber** has been appointed sales manager for the Pittsburgh district for the Fusion Welding Corporation.

B. W. Brown has been promoted to district sales representative with headquarters at Milwaukee, Wis., of the **Lincoln Electric Company,** Cleveland, Ohio, and **G. O. Forseth,** formerly a sales representative at Detroit, Mich., has been promoted to district sales representative with headquarters at Minneapolis, Minn.

Trade Publications

CELITE FOR CONCRETE.—Johns-Manville Corporation, New York City, has issued a 24-page pamphlet describing and illustrating the advantages and many uses for Celite in concrete. Some of the more important subject headings in this pamphlet include: Desirable Features in Concrete; Celite and How it is Used; How Celite Improves Workability; The Effect of Celite on Strength and Uniformity; and How Celite Insures Maximum Water-Tightness.

ROLLER JOURNAL BEARINGS.—The Melcher Spi-Roll railway roller journal bearing, which is exclusively a railroad bearing designed and developed by railway engineers, is fully described and illustrated in publication No. 25 issued by the Railway Motors Corporation, De Pere, Wis. These bearings are interchangeable and are adaptable to all kinds and types of truck and pedestal designs.

WATER SOFTENER.—The Graver hot process continuous water softener, pre-

eminently adapted to the stationary steam boiler plant is described in Bulletin No. 3049 recently issued by the Graver Corporation, East Chicago, Ind. A feature of this catalogue is the flow sheet in colors which is printed on an extension of the front cover. Several tables shows the savings which have been made in various power plants by this softener.

AIR-JACKETED MOTORS.—Bulletin 151 issued by the Wagner Electric Corporation, St. Louis, Mo., contains a discussion of dust, fume and moisture problems in relation to the use of electric motors. The bulletin also describes the dust, fume and moisture-proof qualities of Wagner air-jacketed motors.

SINGLE-PHASE ELECTRIC TRACTION.—Reprints of an article on "A History of the Development of the Single-Phase System" for electric railway operation have been published by the Westinghouse Electric & Manufacturing Company. This twelve page booklet, Reprint 357, gives an interesting account of the development of the single phase-system up to its present day use. The important features of several of the outstanding single-phase systems of the world today are also described.

AMERICAN STEEL FOUNDRIES' DEVELOPMENTS.—The contributions of the American Steel Foundries in the way of research and development of railroad products from 1894 to 1929, or covering a period of 35 years, are outlined in a highly interesting and unusually attractive 35-page booklet recently issued by this company. The booklet is replete with illustrations of research and testing equipment as applied to railroad products, and the subject matter is presented in such a way as to hold the interest throughout. It is divided into six sections covering the development of the cast-steel bolster and truck side frame; the Davis steel wheel; a roller-bearing truck wheel unit; quality springs and brake beams; the automatic coupler; and a section on facilities for general research and development work.

ALEMITE EQUIPMENT FOR RAILROAD USE.—An 18-page catalogue entitled "Alemite Equipment and Parts for Railroad Lubrication," recently issued by the Alemite Manufacturing Corporation, 2650 North Crawford avenue, Chicago, should prove of much value for reference purposes to all railroads now using Alemite fittings and equipment in connection with the pressure lubrication of railroad equipment. Repair parts of the various types of hand and air-operated pressure guns and fittings are listed in detail, giving the part number, correct name and the price of each part. The catalogue is divided into three sections, the first being devoted to Alemite equipment for locomotive lubrication, including rods, motion work, spring rigging, etc. The second section covers the Alemite push-type system for signal equipment and shop lubrication. A third section gives information regarding the parts of a rod compressor and auxiliary rod compressor now obsolete, but of which there are some still in service.

Construction

ATCHISON, TOPEKA & SANTA FE.—The Interstate Commerce Commission has authorized the Kansas City, Mexico & Orient (Texas), a subsidiary, to construct a line from its terminus at Alpine, southwesterly to the Rio Grande near Presidio, 86 miles; estimated cost, $3,505,325.

BOSTON & MAINE.—Bids will be received until about June 5, for the construction of the new 16-story, 500-room modern hotel building to be built in connection with this company's new North Station development in Boston, Mass. The hotel building and west wing of the terminal, over which it will be built, will be constructed by the North Station Hotel Building Company, Inc., Boston. The hotel building will cost approximately $2,500,000. Further details of the development were announced in the *Railway Age* of March 9.

CANADIAN NATIONAL.—Bids were received until May 30 for the clearing of the right-of-way, grading and installation of culverts on the proposed Melfort (Sask.)-Aberdeen branch line, 87 miles.

CANADIAN PACIFIC.—A contract has been let to Anglin-Norcross, Ltd., Toronto, Ont., for the construction of new facilities at Toronto which will include a roundhouse and turntable and an ash handling plant. The expenditure for the work will approximate $800,000.

CHESAPEAKE & OHIO.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of an oil house, power plant and coach wheel drop pit at Richmond, Va., at an approximate cost of $85,000.

CHICAGO, BURLINGTON & QUINCY.—A contract for four cinder handling plants for installation at Eola, Ill., and Savanna, and Gibson, Neb., and Alliance has been let to the Roberts & Schaefer Co., Chicago.

CHICAGO, ROCK ISLAND & PACIFIC.—This company will receive bids until June 10 for the construction of an extension of the St. Paul & Kansas City Short Line between Coburn, Mo., and a point near Nettleton, about 18 miles, approximately one-third of the contemplated new line into Kansas City from the north and east. The work to be performed under the proposed contract covers the finished line, including grading, fencing, construction of bridges, culverts and buildings and track laying.

DELAWARE & HUDSON.—This company has been directed by the New York Public Service Commission to proceed with the reconstruction and relocating of its tracks and the state highway underpass on its lines at Harpursville, N. Y., the commission holding that the existing underpass and approaches are dangerous and public safety requires the changes.

DELAWARE & HUDSON.—This company has petitioned the New York Public Service Commission for permission to extend an industrial siding in Fenton, N. Y., south about a half-mile to cross the Nowlan town road at grade at Jeffers crossing. The supreme court, on April 13, granted the railroad permission to construct and operate the extension of the crossing over the road and the Fenton town board has agreed to the crossing at grade.

ERIE.—This company will receive bids until June 19 for the erection of the steel superstructure for a car transfer bridge at Jersey City, N. J.

FORT WORTH & DENVER NORTHERN.—This company, a subsidiary of the Colorado & Southern, has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Childress to Pampa, Tex., 110 miles.

ILLINOIS CENTRAL.—A contract has been let to Herlihy Brothers, Chicago, for the construction of a reinforced concrete viaduct to carry the tracks of this company over Eighty-seventh street in Chicago. The work to be done under this contract involves the expenditure of about $75,000.

KANSAS CITY SOUTHERN.—This company plans the construction at Beaumont, Tex., of trackage additions, car repair tracks, an eight-stall roundhouse, a machine shop, a scale and an office building, at a total cost of about $1,000,000.

LEHIGH VALLEY.—A plan has been filed by the State Department of Public Works involving the elimination of 10 highway grade crossings on the lines of this company in Van Etten, N. Y., at an estimated cost of $400,000. The plan involves changes in track arrangement by the railroad, the closing of at least seven crossings at grade over the tracks, and the construction of an overhead highway crossing. The plan was favored at a recent hearing before the New York Public Service Commission.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—Plans and specifications for this company's new passenger station in Atlanta, Ga., are now being prepared by McDonald & Company, Architects, of Atlanta. It is expected these plans will be finished in about six weeks, at which time bids will be asked for the construction of the station. Announcement of the proposed plans for the station project, which will cost about $3,000,000 was made in the *Railway Age* of May 4.

NEW YORK CENTRAL.—The New York Public Service Commission has approved an estimate of $151,400, exclusive of land damages and work to be performed by the State Department of Public Works, covering the proposed changes by this

company in connection with the reconstruction of a bridge carrying its lines over the state highway at Salina, N. Y.

NEW YORK CENTRAL.—The Public Service Commission of New York has authorized the construction of a branch from a point a short distance west of Emeryville, St. Lawrence county, New York, southerly 3.7 miles to the proposed plant of the St. Joseph Lead Company. The line will require a 35 ft. bridge over a highway, and three unimportant highways are to be crossed at grade. This line is classed by the Public Service Commission as being in the nature of an industrial siding.

NEW YORK CENTRAL-ERIE-PENNSYLVANIA-NEW YORK, CHICAGO & ST. LOUIS-LEHIGH VALLEY.—A contract has been awarded to Boem Brothers, Buffalo, N. Y., for the construction of a temporary bridge in connection with the reconstruction of the existing bridge carrying a highway over the tracks of these companies in Lackawanna, N. Y. The temporary structure will cost approximately $57,300.

PERE MARQUETTE.—A contract has been let to the Roberts & Schaefer Co., Chicago, for the construction of a 250-ton two-track reinforced concrete automatic electric coaling station and a sanding plant at Lake, Mich.

PENNSYLVANIA.—Contracts have recently been awarded by this company as follows: To Gibbs & Hill, Inc., New York, for the completion of work in connection with the new parcel room, offices, trainmens' quarters, exit concourse concessions and enclosures at the Pennsylvania station in New York, estimated to cost $300,000; to Ferguson & Edmondson Company, Pittsburgh, Pa., for the construction of an overhead bridge and subway to eliminate a grade crossing at County Home Junction, near Greensburg, Pa., to cost about $75,000; to Ross & Taylor, Trenton, N. J., for the building of a foot bridge over the Delaware & Raritan canal feeder at Trenton, N. J.

ST. LOUIS-SAN FRANCISCO.—This company plans the construction of a passenger station at Aberdeen, Miss., involving an expenditure of about $60,000.

UNION PACIFIC—BURLINGTON.—These railroads have reached an agreement with the city of Omaha (Neb.) for the construction of a viaduct over their tracks between Twenty-fourth and Martha streets and Twenty-seventh street and Ed Creighton avenue, Omaha. About 80 per cent of the cost of the viaduct, which will be approximately $250,000 will be borne by the Union Pacific and 20% will be borne by the Burlington. The city will spend about $35,000 for miscellaneous items of construction in connection with the project.

WATERTOWN, SIOUX VALLEY & NORTHERN.—This company plans to construct a railroad between Watertown, S. D., and Grenville, 55 miles. At Watertown connection will be made with the Chicago & North Western, the Chicago, Rock Island & Pacific, the Great Northern and the Minneapolis & St. Louis while at Grenville the new line will connect with the Minneapolis, St. Paul & Sault Ste. Marie.

WESTERN PACIFIC CALIFORNIA.—Examiner Haskell C. Davis of the Interstate Commerce Commission has submitted a proposed report recommending that the commission deny the application of this company, a subsidiary of the Western Pacific, for a certificate authorizing it to extend its line by 138 miles up the San Joaquin valley in California from a connection with the W. P. at Nilegarden, about 11 miles south of Stockton, to a point on Kings River about 21 miles southeast of Fresno. This would include about 126 miles of construction and 12 miles of trackage rights over the Tidewater Southern. The examiner says that public convenience and necessity have not been shown to require "such inherently wasteful paralleling of existing railways."

YANKTON, NORFOLK & SOUTHERN.—A contract for grading this line, which will be constructed between Yankton, S. D., and Norfolk, Neb., 65 miles, has been awarded to Thiesen Brothers, Osmond, Neb.

Railway Finance

BALTIMORE & OHIO.—*Clayton Law Proceeding.*—Daniel Willard, president of the Baltimore & Ohio, testified at the hearing on May 27 on the complaint issued by the Interstate Commerce Commission charging violation of the Clayton law by this company in the acquisition of stock of the Western Maryland. The hearing was held before C. V. Burnside, assistant director of the commission's Bureau of Finance. Mr. Willard testified that no attempt had been made by the B. & O. to exercise any control over the Western Maryland, by the voting of stock or otherwise, and said that application for authorization by the commission had been delayed only because the B. & O. was working on a broader plan, application for which was filed on February 19, and that for a time it had appeared that there would be a general agreement among the eastern roads on the basis of the four-system plan. He admitted that there is competition between the two roads but said that the Western Maryland had never been considered by the B. & O. as such a competitor that there would be any inducement to buy its stock for that reason. He said that in his judgment the road could be more economically operated in connection with the Baltimore & Ohio and that its facilities could be used to relieve or postpone the necessity for capital expenditures amounting to $25,000,000 to $30,000,000 by the Baltimore & Ohio to increase its capacity but that the B. & O. would not care to undertake the acquisition of complete control if there were substantial opposition to such acquisition. He said there had been discussion between officers of the two roads of the establishment of through service via Cherry Run, W. Va., but that it had been thought that if such an arrangement should be put into effect before purchasing the stock a higher price would have to be paid for the stock. Concluding testimony on behalf of the Pittsburgh & West Virginia, which also has pending an application for authority to acquire control of the Western Maryland, was given by F. C. Baird, general manager of the P. & W. V., who testified as to the extent of competition between the two roads. He said the Western Maryland was a necessary part of a through route including the Wheeling & Lake Erie and the P. & W. V., in competition with the B. & O. Luther M. Walter, counsel for the B. & O. moved that the complaint be dismissed on the ground that no violation of the law had been shown but Mr. Burnside said it would appear in the record for the consideration of the commission. O. S. Lewis, freight traffic manager of the B. & O., took the stand following Mr. Willard's testimony, in rebuttal of some testimony given by D. G. Gray, vice-president of the Western Maryland, as to the extent of competition between the two lines.

CHESAPEAKE & OHIO.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $5,025,000 of 4½ per cent equipment trust certificates, series of 1929, the certificates to be sold at 96.57 to a syndicate headed by the Bankers Trust Company, making the average annual cost to the railroad 5.05 per cent. The issue will mature in installments from 1930 to 1944.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $8,370,000 of 5 per cent equipment trust certificates, series J, to be sold to the highest bidder, Halsey, Stuart & Co., at 98.08, which will make the average annual cost to the railroad 5.313 per cent. The issue will mature in installments between 1930 and 1944.

FORT WORTH & DENVER NORTHERN.—*Organization as Burlington Subsidiary.*—The directors of this company, which has been organized for the purpose of constructing a railroad from Childress, Tex., to Pampa, have elected officers who are all officers of either the Chicago, Burlington & Quincy or the Fort Worth & Denver City. Directors of the New Company are K. M. Van Zandt, T. B. Yarbrough, F. E. Clarity, J. H. Barwise, W. C. Logan and W. O. Hamilton of Fort Worth, Tex., J. A. Hulen of Houston, Tex., and F. E. Williamson and C. E. Spens of Chicago.

HIGH POINT, THOMASVILLE & DENTON.—*Note.*—The Interstate Commerce Commission has authorized this company to

issue a promissory note for $50,000 which may be renewed from time to time in partial payment for 25 all-steel box cars to be purchased from the Standard Steel Car Company at a unit price of $2,250 each. The note will bear interest at the rate of 6 per cent per annum.

SEABOARD AIR LINE.—*Adjustment Mortgage Plan.*—The board of directors of the company, in conjunction with the Adjustment Bondholders Committee, has formulated a plan which, if assented to by the adjustment bondholders, will result in a debt reduction of $17,500,000 by substituting a smaller principal amount of consolidated bonds and common stock and common stock purchase warrants for the present adjustment bonds. For each $1,000 of the adjustment bonds, which matured in 1926, the directors offer $500 of first and consolidated mortgage 6 per cent bonds, series A, due in 1945, 15 shares of no-par common stock and subscription warrants authorizing the purchase of 10 shares of no-par common stock at $30 a share (the price increasing later to $40 a share for those who do not avail themselves of the purchase privilege during the next two years). If the plan goes into effect, the company proposes to offer common stock on a pro rata basis to its present stockholders on terms which will yield the company not less than $7,500,000. The plan will not be declared operative until approval is secured from the Interstate Commerce Commission and until the holders of a satisfactory percentage of the adjustment bonds have assented, and also until the proposed offering of common stock be underwritten on satisfactory terms. The National Park Bank of New York has been appointed the New York depository for the bonds under the act.

WATERTOWN, SIOUX VALLEY & NORTHERN.—*Articles of Incorporation Filed.*—Articles of incorporation have been filed with the secretary of state of South Dakota for this company which plans to construct a railroad between Watertown, S. D., and Greenville, 55 miles. The capitalization is listed as $500,000 and the incorporators are: R. F. Lundy, A. S. King and R. S. Farwell of Yankton, S. D., and E. A. Tennis, chairman of the board of the Yankton, Norfolk & Southern, and M. K. Coordes of Chicago. Headquarters of the company will be located at Watertown.

WHEELING & LAKE ERIE.—*Directorate Dispute.*—The Taplin interests in this company at Cleveland, O., on May, 22, following action of the Van Sweringen interests in voting to adjourn the annual stockholders meeting until August 1, met separately and elected a new board of directors. An injunction was then issued to counsel for the Van Sweringen directors on the Wheeling by Judge Alvin J. Pearson, of the Court of Common Pleas, restraining the Taplin elected board of directors from exercising any of the functions of the directors of the railroad. The Van Sweringen representatives voted for adjournment until August 1 in order to postpone the issue of the legality of the Wheeling prior lien stock formerly held by the New York, Chicago & St. Louis, the New York Central and the Baltimore & Ohio until such time as the Interstate Commerce Commission has given a ruling on the right of the stock to be voted. Five new directors were to have been elected at the annual meeting. The board elected by the Taplin interests consisted of: Clarence K. Reynolds, Louisville, Ky.; C. F. Taplin and Richard Sutro, New York; Charles Fearson, Philadelphia, Pa.; Joseph S. Wood, Cleveland; William C. Atwater, Jr., New York; George T. Fillius, Cleveland; Arthur C. Bourne, Cleveland; John L. Steinbugler, New York; Walter L. Haehnlen, Philadelphia; Frank P. Stearns, Cleveland; Flora Shea, secretary to F. E. Taplin, Cleveland; May Shea, her sister, and John T. Atwater, New York. Following the election of directors, the Taplin board then elected the following officers of the Wheeling: Frank E. Taplin, chairman of the board and president; Joseph S. Wood, vice-president; George T. Fillius, treasurer; A. C. Bourne, secretary and auditor, and the law firm of Taplin & Fillius, general counsel. The Taplin interests passed a resolution declaring that all actions of the Wheeling directors since May, 1927, were null and void.

Average Prices of Stocks and of Bonds

	May 27	Last week	Last year
Average price of 20 representative railway stocks.	130.41	133.06	124.26
Average price of 20 representative railway bonds..	90.36	90.78	95.15

Dividends Declared

Boston & Albany.—2½ per cent, quarterly, payable June 29 to holders of record May 31.

Great Northern.—Preferred, 2½ per cent, payable August 1 to holders of record June 25a.

Gulf, Mobile & Northern.—Preferred, 1½ per cent, quarterly, payable July 1 to holders of record June 15.

Mobile & Birmingham.—Preferred, 2 per cent, payable July 1 to holders of record June 2 to June 30.

Pittsburgh, Youngstown & Ashtabula.—Preferred, 1¾ per cent, quarterly, payable June 1 to holders of record May 20a.

Reading.—2nd Preferred, $.50 quarterly, payable July 11 to holders of record June 20.

Texas & Pacific.—Common, $1.25, quarterly, payable June 29 to holders of record June 15.

Railway Officers

Robert E. Woodruff Becomes Erie Vice-President

Robert E. Woodruff, assistant vice-president of the Erie, with headquarters at New York, was on May 24 elected vice-president in charge of operation. He succeeds Charles E. Denney, who was elected president of the road to succeed John J. Bernet.

These changes in the Erie organization accompanied important executive shifts on other Van Sweringen roads. As announced elsewhere in this issue, Mr. Bernet has been elected president of the Chesapeake & Ohio, Hocking Valley, and Pere Marquette, while William J. Harahan, president of the C. & O. and the Hocking Valley becomes senior vice-president of the properties to be headed by Mr. Bernet.

Blank-Stoller

Robert E. Woodruff

Mr. Woodruff was born in 1884 at Green Bay, Wis., and received his education at Purdue University. He first entered railway service in 1905 as a section hand on the Erie and has continued with that road ever since. From 1905 until March, 1909, he served consecutively as track foreman, construction engineer, assistant division engineer, division engineer at Meadville, Pa., and trainmaster.

From the time he served in the latter position until the present, he has remained in the operating department. He thus has the advantage of a broad railroad training, having spent five of his 24 years' experience in the engineering and the remaining 19 in the operating department.

In March, 1909, Mr. Woodruff became general agent of the operating department at Chicago. In November of the following year he was appointed superintendent at Rochester, N. Y., and continued in that position until May, 1912, when he was transferred in the same capacity to Marion, O. On November 1, 1916, he was again transferred, this time to the superintendency at Youngstown, O.

After remaining one year at Youngstown, Mr. Woodruff was appointed superintendent of transportation and continued in this position for six months or until July, 1918, when he became general superintendent of the Lines West. On March 1, 1920, he was promoted to general manager of the Hornell Region, with headquarters at Hornell, N. Y., later being appointed division superintendent at Buffalo.

He was appointed general manager, Eastern district, in February, 1927, having jurisdiction over lines west of Port Jervis, N. Y., and Stroudsburg, Pa., to and including Buffalo and Salamanca, N. Y., in which capacity he served until December, 1928, when he was elected assistant vice-president.

During his entire railroad service Mr. Woodruff has taken an active interest in employee educational work and has been a keen student of organization work. He was at one time active in the up-building of the Central Railroad Club and served as its president. Likewise, along these lines, he developed among Erie employees a series of open forum discussions which stimulated expression among the men. He is the author of a book on railway organization entitled "The Making of a Railroad Officer."

Executive

Albion M. Fenton, whose election as vice-president in charge of traffic of the Chicago, St. Paul, Minneapolis & Omaha was announced in the *Railway Age* of May 25, will maintain an office at Minneapolis, Minn., as well as at St. Paul.

O. P. Van Sweringen has been elected chairman of the board of directors of the Pere Marquette and **F. H. Alfred,** president of the road, has been appointed vice-president in charge of operation in connection with recent Van Sweringen executive changes involving the election of John J. Bernet to the presidency of the C. & O., Hocking Valley and Pere Marquette.

Augustus F. Cleveland, assistant freight traffic manager of the Chicago & North Western, has been elected vice-president in charge of rates and divisions, with headquarters as before at Chicago. Mr. Cleveland has been connected with the North Western for 31 years. He was born on September 19, 1875, at Chicago and attended the Oak

Augustus F. Cleveland

Park (Ill.) high school, Yale University and the Cleveland Law School. In 1898 Mr. Cleveland entered railway service as general agent for the North Western at Atlanta, Ga. Later he was transferred to Cincinnati, Ohio, Cleveland and Philadelphia, Pa., and in 1912 he was promoted to assistant general freight agent at Chicago. Mr. Cleveland was promoted to assistant freight traffic manager, with headquarters at the same point, in 1920, and his election as vice-president became effective on June 1.

J. A. Caviezel, who has been appointed vice-president and general manager of the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., was born on August 19, 1884, at St. Joseph, Mo. He was graduated from Christian Brothers College (St. Joseph) and entered railway service in 1899 as office boy for the St. Joseph & Grand Island. From August, 1903, to May, 1904, he served in various clerical positions in the auditor's office of the Chicago, Burlington & Quincy. He then entered the service of the Toledo, St. Louis & Western (now a part of New York, Chicago & St. Louis) at Toledo, O., as clerk in the accounting department, and in 1906 he went to Mobile, Ala., as general bookkeeper in the auditor's office of the Gulf, Mobile & Northern. He became chief clerk to the auditor of the Alabama, Tennessee & Northern at Mobile in November, 1907, and in July of the following year he entered the service of the Missouri & North Arkansas in a similar position at Eureka Springs, Ark.

J. A. Caviezel

Mr. Caviezel was appointed general auditor of the Jonesboro, Lake City & Eastern (now part of St. Louis-San Francisco) in September, 1908, and remained with that company until February, 1912, when he was appointed auditor of the Alabama, Tennessee & Northern. He became superintendent of the same road at York, Ala., in 1913, and two years later he was appointed general superintendent at Mobile. Mr. Caviezel was promoted to the position of assistant general manager in November, 1920, and in August, 1924, he was appointed general manager which position he held at the time of his recent promotion.

Frank J. Fell, Jr., who has been appointed vice-president and comptroller of the Pennsylvania, with headquarters at Philadelphia, Pa., was born in Philadelphia on July 29, 1878. He was graduated from Temple University (Phila.) and entered railway service in March, 1896, as junior clerk in the accounting department of the Pennsylvania. He then served successively to April, 1909, as assistant to route agent, acting route agent, and route agent of the same road. On the latter date he was appointed statistician in the comptroller's office and in January, 1915, he was promoted to

Frank J. Fell, Jr.

the position of chief statistician. When the accounting department was re-organized in January, 1917, Mr. Fell was appointed to the newly created position of general accountant in the office of the comptroller. In July, 1918, he was appointed assistant comptroller and in September, 1925, he was promoted to the position of deputy comptroller, which position he held until March, 1927, at which time he was appointed comptroller. Mr. Fell will continue to discharge the duties of the comptrollership, in addition to acting as vice-president, and will be in general charge of all of the company's accounting work, which now becomes a separate executive department.

Financial, Legal and Accounting

Sol Hoge, Jr., has been appointed assistant secretary and assistant treasurer of the Wabash, with headquarters at New York.

Elmer Hart, who has been appointed deputy comptroller of the Pennsylvania

Elmer Hart

Railroad, with headquarters at Philadelphia, Pa., was born in Philadelphia in 1883. He attended the public schools

of Philadelphia and Central High School and entered railroad service in May, 1900, as junior clerk in the accounting department of the Pennsylvania. While employed in this position, Mr. Hart attended the evening school of Finance and Accounts of the University of Pennsylvania. He served in various clerical capacities until November, 1910, when he was appointed acting inspector of accounts. In August, 1912, he was advanced to the position of inspector of accounts and in December, 1918, he was appointed special agent on the staff of the assistant comptroller. At the conclusion of the period of federal control of the railroads, Mr. Hart was assigned to special duties in the office of the comptroller. He was appointed assistant to the comptroller in March, 1927, and in December of the same year was promoted to assistant comptroller, which position he held at the time of his recent promotion.

Operating

E. S. Jackson and **G. C. Barnum** have been appointed assistant superintendents of car service for the New York Central, with headquarters at Buffalo, N. Y.

F. A. Dawson has been appointed superintendent of car service of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Indianapolis, Ind.

Traffic

J. C. Ford, general freight agent of the Lake Erie, Franklin & Clarion with headquarters at Clarion, Pa., has been appointed general passenger agent, with headquarters at Franklin, Pa.

James H. Phelps, traffic manager of the Denver Union Stock Yards Company, has been appointed live stock agent of the Union Pacific, with headquarters as before at Denver, Colo., a newly created position.

G. L. Williams, assistant to the general passenger agent of the Spokane, Portland & Seattle, has been promoted to assistant general passenger agent, with headquarters as before at Portland, Ore.

J. P. Cummings, in addition to his duties as superintendent of the Quincy, Omaha & Kansas City, with headquarters at Kansas City, Mo., has been appointed general freight and passenger agent, succeeding **J. J. McGraw,** deceased.

G. H. Clark, general freight agent of the New York Central, with headquarters at New York, has been appointed general freight agent in charge of rates and divisions, with the same headquarters, succeeding J. P. Dervin, promoted. A photograph and biographical sketch of Mr. Clark's railway career appeared in the February 9, 1929, issue of the *Railway Age,* Page 393.

F. A. Key, Jr., general freight and passenger agent of the old Louisiana & Arkansas, has been appointed to a similar position with the newly formed company of the same name, with headquarters at Shreveport, La., and with jurisdiction over rates. **H. R. Whiting,** assistant general freight and passenger agent of the old company, has been appointed general freight agent in charge of solicitation, with headquarters at Shreveport.

James Finlay, assistant general freight agent on the Michigan Central in charge of industrial development, has been appointed manager of industrial development, with headquarters as before at Detroit, Mich. **J. H. Becker** has been appointed assistant manager of industrial development, with headquarters at Detroit. **H. T. Rickerson,** general agent in the freight department at Toledo, Ohio, has been promoted to general perishable agent, with headquarters at the Michigan Central Produce Terminal building, Detroit. **H. W. Miller,** traveling freight agent at Philadelphia, Pa., has been promoted to general agent at Toledo, succeeding Mr. Rickerson.

L. A. Veroneau, chief of the tariff bureau of the Grand Trunk Western, has been promoted to assistant general freight agent, with headquarters as before at Chicago. **H. W. Ploss,** division freight agent at Milwaukee, Wis., has been promoted to assistant general freight agent, with headquarters at Chicago. **C. A. Skog,** assistant general freight agent, with headquarters at Chicago, has been transferred to Detroit, Mich. **William A. Gray** has been appointed chief of the tariff bureau at Chicago, succeeding Mr. Veroneau. **D. G. Sheehan** has been appointed general agent at Milwaukee.

Edward A. Donnelly, assistant general freight agent of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Minneapolis, Minn., has been promoted to freight traffic manager, with headquarters at the same point, effective June 1. **Edward L. Pardee,** general passenger agent, has been promoted to passenger traffic manager, with headquarters as before at St. Paul, Minn. **Thomas J. Kenniff,** assistant general freight agent at St. Paul, has been promoted to general freight agent in charge of traffic, with headquarters at the same point. **Harry A. Mintz,** assistant general freight agent at St. Paul, has been promoted to general freight agent in charge of rates and divisions, with the same headquarters.

J. P. Dervin, general freight agent of the New York Central, with headquarters at New York, has been appointed assistant freight traffic manager, with the same headquarters, succeeding G. C. Woodruff, resigned. Mr. Dervin was born on February 22, 1883, at Center Rutland, Vt. He was educated in high school at Rutland and entered railway service in November, 1900, with the Rutland. He served as stenographer in the assistant general freight agent's office of the New York Central & Hudson River from April, 1903 to 1905, when he became rate clerk in the same office. In January, 1911, he was appointed chief clerk and in August, 1916, he was promoted to the position of chief of the tariff bureau of the same road, which is now a part of the New York Central. He was promoted to general freight agent in December, 1923, and served in that capacity until his recent appointment as assistant freight traffic manager.

G. E. Taylor, assistant general freight agent of the New York Central, with headquarters at Buffalo, N. Y., has been appointed general freight agent with headquarters at New York, succeeding G. H. Clark, promoted. Mr. Taylor was born at Auburn, N. Y., on June 15, 1886. He entered railway service with the Auburn & Syracuse Electric Railroad at Auburn, in 1902, as ticket agent. He was later employed in various capacities on the Erie & Lehigh Valley, and in November, 1907, became dispatcher's assistant and clerk for the New York, Auburn & Lansing, later acting as freight agent for its successor, the New York Southern Corporation. He then served successively with the same road as soliciting freight agent, general freight and passenger agent and claim agent until federal control of the railroads, at which time the New York Southern Corporation came under the control of the New York Central and Mr. Taylor was appointed division freight agent at Ithaca, N. Y. He resigned in February, 1920, to become division freight agent of the Lehigh Valley and in July, 1920, he was appointed Canadian freight and passenger agent of the New York Central at Montreal. He was division freight and passenger agent of the same road at Corning, N. Y. from March, 1922 to January, 1925, when he was appointed coal freight agent at New York City. He became assistant general freight agent on January 1, 1927, serving in that capacity until May 3, 1929, when he was promoted to general freight agent in charge of solicitation.

Purchases and Stores

G. R. Williams, assistant comptroller of the Spokane, Portland & Seattle, has been appointed purchasing agent, with headquarters as before at Portland, Ore., succeeding **Elmo Edwards,** who because of ill health, has been transferred to other duties.

E. J. Lamneck, assistant purchasing agent of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed fuel purchasing agent, with the same headquarters, succeeding **B. P. Phillippe,** deceased. **C. L. McIlvaine,** assistant stores manager, with headquarters at Philadelphia, has been appointed assistant purchasing agent. **James Young,** supervisor in the purchas-

ing department has been appointed assistant purchasing agent, and **Wade N. Kuhn,** assistant fuel purchasing agent has also been appointed an assistant purchasing agent. **G. H. Schultz,** assistant purchasing agent at Pittsburgh has been appointed assistant fuel purchasing agent at Philadelphia. **S. A. Montgomery,** supervisor in the purchasing department has been appointed assistant to the purchasing agent. **E. B. DeVilbiss,** superintendent of motive power of the New Jersey division has been appointed assistant stores manager. **C. W. Kinnear,** assistant general storekeeper at Altoona has been appointed assistant general storekeeper at Philadelphia. **O. B. Mills,** assistant general storekeeper has been appointed assistant to general storekeeper. **O. V. Daniels,** general storekeeper at Altoona has been appointed works storekeeper at the same point. **W. L. Oswalt,** assistant general storekeeper at Altoona has been appointed assistant works storekeeper with the same headquarters.

Engineering, Maintenance of Way and Signaling

W. K. Tate, track supervisor on the Nashville, Chattanooga & St. Louis at Tullahoma, Tenn., has been appointed industrial engineer, with headquarters at Nashville, Tenn.

G. A. Phillips, engineer maintenance of way of the Lehigh Valley, with headquarters at Bethlehem, Pa., has been appointed chief engineer of maintenance, with the same headquarters, effective June 1.

Special

Arthur E. Gilman, secretary of the Lima (Ohio) Chamber of Commerce, has been appointed development manager of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., effective June 15.

Obituary

W. L. Harper, general agent of the coal and ore department of the New York Central at Chicago, died of heart disease at St. Luke's hospital in that city on May 25. Mr. Harper was 69 years of age and had been in the service of the New York Central for more than 40 years.

Pierce J. Landers, superintendent of the Indianapolis Union, with headquarters at Indianapolis, Ind., died in that city on May 25 from heart disease. Mr. Landers had been in railway service for nearly 41 years. He was born on July 17, 1870, at Indianapolis and entered railway service in July, 1888, as a rodman on the Pennsylvania. Later he served on that railroad successively as superintendent's clerk, as a draftsman and as an assistant engineer. From 1898 to 1907 he acted as roadmaster at Oshkosh, Wis., and division engineer at Fond du Lac, Wis., on the Wisconsin Central (now part of the Minneapolis, St. Paul & Sault Ste. Marie) and as assistant engineer on the Indianapolis Union. Mr. Landers was then promoted to engineer of maintenance of way of the latter railroad. He had occupied the position of superintendent since August 1, 1916.

Frank W. Morse, former vice-president and general manager of the Chicago & Alton and vice-president and general manager of the Toledo, St. Louis & Western, died on May 25 in New York. Mr. Morse had been in poor health since his recent return from Europe where he had been engaged in work dealing with the consolidation of railway lines in Central Europe. Mr. Morse was born on December 31, 1864, at Lafayette, Ind. He was graduated from the manual training school of Washington University at St. Louis, Mo., and began railroad work as assistant master mechanic on the Wabash. He served as master mechanic on several western roads and in May, 1896, was appointed superintendent of motive power of the Grand Trunk. In July, 1901, he was appointed third vice-president of the same system and four years later he became vice-president and general manager of the Grand Trunk Pacific at Montreal, Que. He served as vice-president and general manager of the Chicago & Alton from May, 1911 to August, 1912, and from May 1, 1911, to September 1, 1911, he also served as vice-president and general manager of the Toledo-St. Louis & Western. Mr. Morse also acted as foreign agent for the Baldwin Locomotive Works at Warsaw, Russia, for a short period.

James H. Hiland, retired vice-president of the Chicago, Milwaukee, St. Paul & Pacific, who died on May 20, was born on September 27, 1848, in Vermont. He had been in railway service for nearly 60 years at the time of his retirement, starting in 1858 as a fireman on the Milwaukee at Janesville, Wis. He was engaged in the construction of the first railroad bridge across the Mississippi river at Brairie du Chien, Wis., and in 1861 became a clerk in the general offices of the Milwaukee at Milwaukee, Wis. Later he was connected with the Western Wisconsin (now a part of the Milwaukee) and in 1878 he was appointed assistant traffic manager of the Chicago, St. Paul, Minneapolis & Omaha. Five years later he was promoted to general traffic manager and in 1883 he was appointed general freight agent. From 1884 to 1903 Mr. Hiland served successively as arbitrator and referee for the Chicago, St. Louis & Missouri River Passenger Association, general agent for the Minneapolis (Minn.) Millers' Association, general agent for the Milwaukee and general freight agent and general traffic manager of the same road. In March, 1903, he was elected third vice-president of the Milwaukee, with headquarters at Chicago, then being elected vice-president in charge of passenger traffic, oriental traffic and industries in October, 1909. Mr. Hiland retired under the pension rules of the company on December 15, 1917.

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